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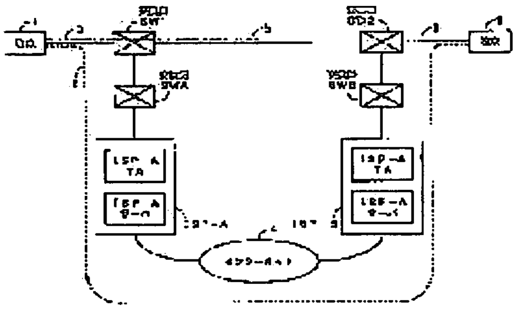
(54) COMMUNICATION TERMINAL AND COMMUNICATION METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To allow the communication terminal to conduct directly end-end communication through the Internet without the use of a service such as rendevous in the communication system where address information of a destination network required for communication connection like an Internet telephone system is not known.

SOLUTION: Prior to the communication via the Internet, information including at least its own Internet protocol IP address on the Internet through other channel is sent from one terminal 1 to a terminal 2 of a communication opposite party. The terminal 2 of the communication opposite party uses the IP address acquired through other channel to make dialing of the communication via the Internet 4 so as to execute the communication of end-end directly via the Internet.



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CLAIMS

[Claim(s)]
[Claim 1] When it is the method of communicating through a communication network and a communication terminal is connected to the aforementioned communication network In the correspondence procedure to which the address of the aforementioned communication terminal on the aforementioned communication network is assigned dynamically In advance of the communication which leads the aforementioned communication network, a circuit other than the circuit which communicates through the aforementioned communication network is led. The information which includes the address on the aforementioned communication network of a self communication terminal at least The correspondence procedure characterized by performing communication which led the aforementioned communication network because the communication demand to which it transmits to the communicative other party, and the other party of the aforementioned communication led the aforementioned communication network using the address acquired through the circuit according to above sends out.
[Claim 2] Information including the aforementioned address transmitted to the communicative other party in the correspondence procedure of a claim 1 in advance of the communication which led the aforementioned communication network is a correspondence procedure characterized by transmitting as user user information included in the call setup message using an ISDN network.
[Claim 3] Information including the aforementioned address transmitted to the communicative other party in the correspondence procedure of a claim 1 in advance of the communication which led the aforementioned communication network is a correspondence procedure characterized by communicating as data communication information by the telephone line using a modem.
[Claim 4] Information including the aforementioned address transmitted to the communicative other party in the correspondence procedure of a claim 1 in advance of the communication which led the aforementioned communication network is a correspondence procedure characterized by communicating using the information on a sub-address using an ISDN network.
[Claim 5] Information including the aforementioned address transmitted to the communicative other party in the correspondence procedure of a claim 1 in advance of the communication which led the aforementioned communication network is a correspondence procedure characterized by transmitting using a dial tone.
[Claim 6] the correspondence procedure of a claim 1 -- setting -- the above -- the correspondence procedure which precedes transmitting the information which includes the address on the self aforementioned communication network even if few to the communicative other party, performs call origination which includes master station information to the other party of the aforementioned communication, and is characterized by to carry out automatic answering according to the aforementioned master station information included in the received call origination information in the other party of the aforementioned communication
[Claim 7] the correspondence procedure of a claim 1 -- setting -- the above -- the correspondence procedure characterized by to precede transmitting the information which includes the address on the self aforementioned communication network even if few to the

communicative other party, to perform call origination which contains a password as master station information to the other party of the aforementioned communication, and to carry out automatic answering of the other party of the aforementioned communication according to the password as the aforementioned master station information included in the received call-origination information
[Claim 8] It is the correspondence procedure characterized by performing transmission to the other party of the aforementioned communication before the aforementioned communication after the check of communication by the telephone call with the aforementioned other party in the correspondence procedure of a claim 1.
[Claim 9] The communication terminal characterized by providing the following. A means by which the address on a communication network performs a connection request to the aforementioned communication network dynamically assigned to the communication terminal connected to this communication network, and acquires the self address on the aforementioned communication network. A means to transmit the address on the self aforementioned communication network to the communicative other party at least through a circuit other than the circuit which communicates through the aforementioned communication network, and a means to answer the communication demand which leads the aforementioned communication network from the other party of the aforementioned communication, and to perform the aforementioned communication between terminals.
[Claim 10] The communication terminal characterized by providing the following. A means by which the address on a communication network performs a connection request to the aforementioned communication network dynamically assigned to the communication terminal connected to this communication network, and acquires the self address on the aforementioned communication network. A means acquire the information which is transmitted through a circuit other than the circuit which communicates through the aforementioned communication network and which includes the address on the other party's aforementioned communication network at least, and a means specify the address which carried out [aforementioned] acquisition as the address of a partner terminal, perform the communication demand which leads the aforementioned communication network, and are made performing the information communication between terminals through the aforementioned communication network.
[Claim 11] The communication terminal characterized by having a means to notify the information which carried out [aforementioned] acquisition to a user in a communication terminal according to claim 10.
[Claim 12] It is the communication terminal characterized by a means on a communication terminal according to claim 9 and as opposed to the other party of the aforementioned communication of the address on the self aforementioned aforementioned communication network and to transmit being a means to perform the transmission concerned during a telephone call with the other party of the aforementioned communication.
[Claim 13] Information including the address on the aforementioned communication network is a communication terminal according to claim 9 or 10 characterized by being transmitted as user user information included in the call setup message using an ISDN network.
[Claim 14] Information including the address on the aforementioned communication network is a communication terminal according to claim 9 or 10 characterized by using a modem and communicating as data communication information by the telephone line.
[Claim 15] Information including the address on the aforementioned communication network is a communication terminal according to claim 9 or 10 characterized by using an ISDN network and communicating using the information on a sub-address.
[Claim 16] Information including the address on the aforementioned communication network is a communication terminal according to claim 9 or 10 characterized by being transmitted using a dial tone.
[Claim 17] The communication terminal characterized by having the automatic-answering means which carries out automatic answering of the master station information included in the call origination information received at the time of arrival of the mail in the communication terminal of a claim 10 according to the comparison result as compared with the master station

information registered beforehand.

[Claim 18] a communication terminal according to claim 9 -- setting -- the above -- the communication terminal characterized by having a means to perform call origination which precedes transmitting the information which includes the address on the self aforementioned communication network even if few to the communicative other party, and contains a password to the other party of the aforementioned communication

[Claim 19] The communication terminal characterized by having the automatic-answering means which carries out automatic answering when the password contained in the call origination information received at the time of arrival of the mail in the communication terminal of a claim 10 is able to be decoded and decoded.

[Claim 20] Communication system which is characterized by providing the following and which performs remote-control communication through a communication network. The circuit of the communication which led the aforementioned communication network to the remote-control-ed terminal is the automatic-answering means which is equipped with a means transmit the information which includes the address on the self aforementioned communication network at least to the aforementioned remote-control-ed terminal, through another circuit, and carries out automatic answering of the aforementioned remote-control-ed terminal to the call origination from the aforementioned remote-control pin center,large in advance of communication with the aforementioned remote-control-ed terminal with which the remote-control pin center,large led the aforementioned communication network. A means to carry out connection processing for performing communication which was well-informed about a means to acquire the information containing the address information on the aforementioned communication network of the aforementioned remote-control pin center,large transmitted, in the aforementioned communication network using the aforementioned address information of the aforementioned remote-control pin center,large which carried out [aforementioned] acquisition from the aforementioned remote-control pin center,large, and to transmit predetermined data to the aforementioned remote-control pin center,large.

[Claim 21] It is the communication system which the aforementioned remote-control pin center,large performs call origination which includes master station information to the aforementioned remote-control-ed terminal in communication system according to claim 20, and is characterized by the automatic-answering means of the aforementioned remote-control-ed terminal carrying out automatic answering of the master station information included in the call origination information received at the time of arrival of the mail according to the comparison result as compared with the master station information registered beforehand.

[Claim 22] It is the communication system characterized by the aforementioned remote-control pin center,large performing call origination which contains a password to the aforementioned remote-control-ed terminal in communication system according to claim 20, and the automatic-answering means of the aforementioned remote-control-ed terminal decoding the password contained in the call origination information received at the time of arrival of the mail, and carrying out automatic answering when it is able to decode.

[Claim 23] Are the correspondence procedure which performs remote-control communication through a communication network, and the aforementioned communication network communication is preceded. Call origination is performed from a remote-control pin center,large side to the aforementioned remote-control-ed terminal side. It waits for the response by the side of the aforementioned remote-control-ed terminal, and the information which includes the address on the self aforementioned communication network at least is transmitted. the aforementioned remote-control-ed terminal side Carry out automatic answering to the call origination from the aforementioned remote-control pin center,large, and the information containing the address information of the aforementioned remote-control pin center,large transmitted from the aforementioned remote-control pin center,large side is acquired. Then, the correspondence procedure which carries out connection processing for performing communication which led the aforementioned communication network using the address information of the aforementioned remote-control pin center,large which carried out [aforementioned] acquisition, and is characterized by transmitting the data registered beforehand to the aforementioned remote-control pin center,large side through the aforementioned communication network.

[Claim 24] It is the correspondence procedure characterized by performing call origination which includes master station information to the aforementioned remote-control-ed terminal, and carrying out automatic answering of the master station information included in the call origination information received in the aforementioned remote-control-ed terminal side at the time of arrival of the mail in a correspondence procedure according to claim 23 according to the comparison result as compared with the master station information registered beforehand from the aforementioned remote-control pin center,large side.

[Claim 25] It is the correspondence procedure characterized by performing call origination which contains a password to the aforementioned remote-control-ed terminal, decoding the password contained in the call origination information received at the time of arrival of the mail in the aforementioned remote-control-ed terminal side, and carrying out automatic answering from the aforementioned remote-control pin center,large side in a correspondence procedure according to claim 23 when it is able to decode.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] This invention is the communication which led the communication network network, for example, is applied to the communication mode which connection place information required for connection does not understand in advance like an Internet telephone, and relates to a suitable correspondence procedure and a suitable communication terminal.
[0002]
[Description of the Prior Art] The Internet is known as a global computer network. The Internet is the computer network network which connected the computer networks which exist in a company, a university, etc. of every country in the world through the broader-based circuit, and is spread around the whole world. Various services which already used the Internet, such as electronic mail service, and file transfer service, information retrieval service, are offered.
[0003] Drawing 12 shows the outline of the Internet. The portions NET101, NET102, and NET103 surrounded and shown with a slash in drawing 12 and -- are computer networks. These computer networks NET101, NET102, and NET103 and -- have two or more terminals T, T, and T and --, respectively. Each computer networks NET101, NET102, and NET103, the terminals T, T, and T of --, and -- are connected by LAN (Local Area Network), respectively. Ethernet, the token ring, etc. are used as a gestalt of LAN.
[0004] Each computer networks NET101, NET102, and NET103 and -- are mutually connected through routers R101, R102, and R103 and --. Routers R101, R102, and R103 and -- perform routing processing which delivers the data on a computer network to a computer network by the destination.
[0005] Thus, computer networks NET101, NET102, and NET103 and -- are connected through routers R101, R102, and R103 and --, and the computer network network is built. Such a computer network network is called Internet. By the Internet, the thing of the computer networks NET101, NET102, and NET103 in the world and -- for which data are transmitted becomes possible in between.
[0006] In the Internet, IP (Internet Protocol) is used as a protocol of a Network layer. In IP, an IP address is assigned to each terminal and the point which transmits one DE evening is discriminated by the IP address. An IP address is what collected four numbers which can be expressed with 8 bits, and consists of binary digits, for example, is expressed like "43.3.25.24.6."
[0007] It is apprehensive about shortage of an IP address as the Internet spreads. Then, there are many terminals registered on a certain network, and in the case where there are few terminals actually connected, in order to save an IP address, only when it has on a network the server which assigns an IP address and the terminal is actually connected, a vacant IP address may be assigned. If it does in this way, only the number of a terminal does not need to prepare an IP address and a limited number of IP addresses can be used effectively.
[0008] In the Internet, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) are used as a protocol of a transport layer. TCP has the function which carries out ** which communicates after making so-called connection type communication connection, packet turn

control, retransmission of message, a flow control, and a congestion control UDP is a connectionless type protocol, and when real time nature is required, it is used instead of TCP. For example, in digital speech communications, even if a part of packet falls, it does not carry out requiring the resending, but voice is sent without a way piece. In the case of such speech communication, UDP is used.

[0009] Thus, fundamentally in the Internet, the protocol of TCP/IP is used. That is, an IP address is assigned to the terminal of a computer network and this IP address is used for discernment of a terminal. And a packet is transmitted by TCP or UDP.

[0010] However, necessarily, if an individual computer is tied with LAN, it may not be broken, and it may not have the IP address. Then, when an individual participates in the Internet, the company called Internet service provider is used. If an Internet service provider (it is hereafter described as ISP) is used, the telephone line will be used, for example, an individual computer will be connected to a computer network by PPP (Point to Point Protocol) or SLIP (Serial Line IP), and it will become possible to participate in the Internet.

[0011] Drawing 13 is drawing for explaining an example of ISP. The computer network NET 151 of ISP has SA 1 BA S151 and the router R151. The server S151 is connected to the dial-up line network TEL 151 through two or more modems M151, M152, and M153 and --.

[0012] Terminals T151, T152, and T153 and -- are the terminals of those who participate in the Internet individually. Terminals T151, T152, and T153 and -- are connected to the dial-up line network TEL 151 through a modem (not shown). As the individual terminals T151, T152, and T153 and --, one personal KOMPYU evening which has a serial port can be used.

[0013] When participating in the Internet using ISP, it is common that a contract is beforehand made with a user and the company of ISP. If the contract of a user and ISP is made, an account name and a password will be sent to a user.

[0014] In participating in the Internet from the individual terminals T151, T152, and T153 and --, a user calls to ISP and calls the computer network NET 151 of ISP. If a call is received, a server S151 will require the input of an account name and a password, and will attest whether the contract is made between ISP.

[0015] If the account name and password which were inputted are right and it is attested that the contract is made between ISP, if a server S151 searches a vacant IP address and has a vacant IP address, it will be assigned to the terminals T151, T152, and T153 and -- which are going to participate in the Internet by making this IP address into a temporary IP address. A temporary IP address is attached to terminals T151, T152, and T153 and -- by this, and it can connect now with the Internet.

[0016] In addition, although PPP connection is made using the telephone line, you may make it use ISDN (Integrated Service Digital Network) in the example of above-mentioned explanation. As for ISDN64, two and D channels of 16kbps become [B channels of 64kbps(es)] one circuit from three channels in the one sum total. It can use as a circuit of 64kbps by passing IP packet the place base using ISDN, and on B channels. That is, since there are B channels [two], in ISDN, two circuits can be substantially used independently under the treaty of the one telephone line.

[0017]

[Problem(s) to be Solved by the Invention] The Internet telephone which telephones to the other party using the Internet explained above attracts attention. Since the Internet can carry out free ****** fundamentally, in the Internet telephone which talks over the telephone using the Internet, it becomes possible to be able to talk over the telephone only by the charge produced by the contract with ISP, the telephone rate to ISP, or the toll of ISDN, and to perform a long-distance telephone and an international call at a very cheap charge.

[0018] However, I hear that the greatest trouble of an Internet telephone cannot call the terminal of the user who has participated in the Internet individually by PPP connection etc., and there is.

[0019] That is, by the Internet, as mentioned above, although used for specification of a communication place in an IP address, only when connection is required of the terminal of the user who contracted with ISP and has participated in the Internet by PPP, an IP address is temporarily assigned to it, and it does not always connect with it. For this reason, since the partner who usually makes PPP connection using ISP does not understand a partner's IP address in advance now even if he is going to talk over the telephone considering the terminal of the user who has participated in the Internet by PPP as the partner point when PPP connection is not made, the partner point cannot be called directly.

[0020] In addition, for the terminal of LAN which exists in the company which is not connected to the Internet through ISP but is directly connected to the Internet, a university, etc., it is ****** to call fundamentally, using an IP address, since an IP address is assigned and it is always working.

[0021] However, in order to save an IP address, the terminal of such LAN may also assign a vacant IP address, only when it has on a network the server which assigns an IP address and the terminal is actually connected (DHCP;Dynamic Host Configuration Protocol). Since it does not decide an IP address uniquely in making into the partner point the terminal with which an IP address is assigned temporarily in this way even if it is the terminal of LAN which exists in a company, a university, etc., it cannot know in advance like the telephone number, and the specific partner point cannot be called.

[0022] In order to solve this trouble, there is service which offers the IP address of the partner point required for communication like the so-called rendezvous server. That is, those who receive this service switch on the power supply of their own computer, and log in to a server. And if the list of persons to which it logged in is required from a server, the list of service contractors to which it logs in then will be sent to a server. A service contractor chooses the partner he wants to talk over the telephone from the lists, and notifies to a server. Then, a server is an end with a partner by using this IP address, since the selected partner's IP address is offered. - It can communicate now by and (PPP).

[0023] However, when this service was used, there were following un-arranging. That is, communication is impossible, unless it is, after both who perform ** communication put the power supply of each other into their own computer and register with the server of service like the above-mentioned rendezvous server, when it is going to communicate via the Internet using this service. in addition -- since the computer terminal is not necessarily automatically deleted from a list when the power supply of a computer is dropped, after appearing in a list, just because it is in a list -- surely -- a partner -- a computer -- a power supply -- supplying -- ****** in which communication connection is possible -- being certain -- dividing -- coming out -- there is nothing

** The charge of use of a server is needed.

** Since the login information on a server, i.e., its IP address, is exhibited substantially, privacy is not maintained.

** The unnecessary arrival from terminals other than the terminal which wants to communicate again since it is opened to a list occurs.

** When the server is downed, it cannot communicate. There is un-arranging [to say].

[0024] This invention aims at the ability of communication of the end-end which led to be made to do a network, even if the address information on the network of the partner point required for communicative connection does not use the so-called above rendezvous servers etc. in the communication mode which is not understood in advance in view of the above point.

[0025]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, it sets to this invention. When it is the method of communicating through a communication network and a communication terminal is connected to the aforementioned communication network In the correspondence procedure to which the address of the aforementioned communication terminal on the aforementioned communication network is assigned dynamically In advance of the communication which leads the aforementioned communication network, a circuit other than the circuit which communicates through the aforementioned communication network is led. The information which includes the address on the aforementioned communication network of a self communication terminal at least It transmits to the communicative other party and the other party of the aforementioned communication is characterized by performing communication which led the aforementioned communication network because the communication demand to which it led sends out the aforementioned communication network using the address acquired through the circuit according to above.

[0026] In the correspondence procedure by this invention of above-mentioned composition, the address on the network of the terminal, for example, an IP address, is transmitted to the other party of communication beforehand from the direction which serves as a destination side in the communication which leads a communication network. If the other party who acquired this IP address performs the communication demand which leads a communication network considering this IP address as an IP address of a communications partner and there is a partner's response, the communication and the telephone call which led the aforementioned communication network will be performed.

[0027]

[Embodiments of the Invention] When performing hereafter end - and communication (communication between terminals) which led the Internet among individuals in the gestalt of operation of the correspondence procedure by this invention, the case of the telephone via the Internet is explained referring to drawing.

[0028] Drawing 1 shows the outline of communication network composition in which the correspondence procedure of the gestalt of this operation is applied. In drawing 1 , a communication terminal 1 and a communication terminal 2 are individual computers, and carry the application which can perform telephone communication which leads the Internet as the software, respectively.

[0029] In addition, since this application may be sent from the communicative other party so that it may mention later, it does not necessarily need to be carried in a terminal from the beginning.

[0030] In the case of the gestalt of this operation, the telephone lines 3 and 3 to which a terminal 1 and a terminal 2 are connected are ISDN circuits, and as the above-mentioned was also carried out, they are substantially equipped independently with the line-of-contact capacity for two usable circuits. The exchange SW1 is for performing the telephone exchange to a terminal 1. Moreover, the exchange SW2 is for performing the telephone exchange to a terminal 2.

[0031] ISP-A is an Internet service provider which the user of a terminal 1 has made a contract of. Moreover, ISP-B is an Internet service provider which the user of a terminal 2 has made a contract of. These ISP-A and ISP-B are constituted including the terminal adapter (TA) and the server, and the router as shown in drawing 3 , respectively, although not further illustrated to drawing 1 .

[0032] Exchange SWA is for performing the telephone exchange to ISP-A, and Exchange SWB is for performing the telephone exchange to ISP-B. ISP-A and ISP-B are connected to the Internet 4.

[0033] Exchanges SW1, SW2, SWA, and SWB are the so-called exchanges of an ISDN public line network. It follows, for example, by call origination operation by the usual telephone number, the call is made to receive a message in a terminal 2, ISP-A, or ISP-B, and a terminal 1 can be communicated to it.

[0034] However, as mentioned above, in order to communicate the end-end which leads the Internet 4 from a terminal 1 to a terminal 2, a terminal 1 must acquire the IP address of a terminal 2 in advance. And if the IP address of a partner terminal is known, it will become possible to communicate the end-end which goes via ISP-A-> Internet 4 ->ISP-B by the packet including a self IP address and a partner's IP address.

[0035] Next, the composition of communication terminals 1 and 2 is explained. With the gestalt of this operation, it has composition with completely same a communication terminal 1 and a communication terminal 2. The block diagram of the composition of the communication terminal of the gestalt of this operation is shown in drawing 2 .

[0036] As mentioned above, the communication terminal of the gestalt of this operation is constituted by the individual computer, and to the system bus 10, a control section 11, the data-processing section 12, the speech processing section 13, the key-switch section 14, a display 15, the ISDN interface section 16, the hand-set section 17, a switching circuit 18, and the ringer generating section 19 are connected, and it is constituted.

[0037] A control section 11 controls the whole terminal. Moreover, a control section 11 has two incomes with the data-processing section 12, and performs required data processing, such as protocol processing to the data sent via the Internet, and processing which generates the data transmitted via the Internet.

[0038] In the case of the telephone communication via the Internet, since voice data is compressed and transmitted, the speech processing section 13 performs processing which elongates the voice data which compressed the voice data which transmits and received.

[0039] The key-switch section 14 is equipped with the key switch of a dialing key and others. It is recognized by the control section 11 which is the operated key, and a control section 11 performs control corresponding to it. Moreover, with the gestalt of this operation, a response key is prepared in the key-switch section 14. This response key is operated when it is a thing for transmission of the prior IP address of the communication of arrival of the mail by the Internet course. If this response key is operated, unlike the usual off-hook operation, a terminal will send out a cutting message and will cut a circuit.

[0040] A display 15 displays information required in order that the display of the telephone number which it keyed etc. may be performed or the numbering number (partner telephone number) and called terminal which received at the time of the arrival from an ISDN line network and which are contained in master station information may communicate at the time of call origination. Moreover, the display of the purport that the other party consented to the communication which leads the Internet is also performed by the gestalt of this operation by this display 15 so that it may mention later.

[0041] It connects with a circuit 3 and the ISDN interface section 16 enables communication of 2B+D (two channels [B] and one channels [D]) in this example.

[0042] The hand-set section 17 carries out A/D conversion of the sound signal which carried out D/A conversion of the received digitized voice data which were obtained from the switching circuit 18, changed into the analog sound signal, and outputted to loudspeaker 17S, and was inputted from microphone 17M, and outputs it to a switching circuit 18.

[0043] A switching circuit 18 is switched by the control section 11, and is controlled, and in the case of the usual ISDN telephone, it is switched at the a side, and, in the case of the telephone via the Internet, is switched at the d side, respectively.

[0044] The ringer generating section 19 generates a ringer (bell sound) in order to tell an arrival-of-the-mail user about it at the time of arrival of the mail.

[0045] It is as follows when this terminal operates as an ISDN telephone. That is, at this time, a switching circuit 18 is switched to the a side which is in the state of illustration. And D/A conversion of the digitized voice data received in the ISDN interface section 16 is supplied and carried out to the hand-set section 17 through a switching circuit 18, they are supplied to loudspeaker 17S, and are outputted as a receiver voice.

[0046] Moreover, A/D conversion of the transmission sound signal inputted from microphone 17M is carried out in the hand-set section 17, it is used as digitized voice data, and is sent out to the ISDN circuit 3 through the ISDN interface section 16 through a switching circuit 18.

[0047] Next, it is as follows when a terminal carries out telephone operation via the Internet. That is, at this time, a switching circuit 18 is switched to the b side which is in a state contrary to the state of illustration. And protocol processing is carried out by the control section 11, and the voice data received in the ISDN interface section 16 from the ISDN circuit 3 via the Internet is handed over by the speech processing section 13. The speech processing section 13 elongates the received data, and hands them over in the hand-set section 17 through a switching circuit 18. In the hand-set section 17, D/A conversion is carried out and it is outputted by loudspeaker 17S as a receiver voice.

[0048] Moreover, A/D conversion of the transmission sound signal inputted from microphone 17M is carried out in the hand-set section 17, it is used as digitized voice data, is handed over and compressed into the speech processing section 13 through a switching circuit 18, and is handed over by the control section 11. By having two incomes with the data-processing section 12, the received voice data is changed into the data stream which should transmit according to

the telephone application protocol in the Internet, and a control section 11 sends it out to the ISDN circuit 3 through the ISDN interface section 16.
[0049] Operation of the telephone communication via the Internet is explained below using the terminal 1 of the above composition, and a terminal 2.
[0050] In the gestalt of this operation, when performing telephone communication via the Internet, for example between a terminal 1 and a terminal 2, in advance of the telephone communication via this Internet, the IP address of one terminal to the terminal concerned is transmitted to the other-end end of a communications partner.
[0051] And it connects with the Internet through ISP and the terminal side which received the IP address acquires a self IP address. And dispatch according to the protocol of the Internet which sends out a call setup message including this self IP address and the IP address of the received communications partner is performed. Thereby, between two terminals, it will connect via the Internet and communication becomes possible.
[0052] The gestalt of some operations of the correspondence procedure by this invention is explained. In the following explanation, the side which acquires a master station and this IP address for the side which sends a self IP address to a partner terminal by ISDN telephone will be called called terminal in advance of the telephone communication via the Internet.
[0053] In the gestalt of this 1st operation [the gestalt of operation of the 1st of a correspondence procedure] -- For example, when performing telephone communication via the Internet between a terminal 1 and a terminal 2 In advance of the telephone communication via this Internet, it connected with the Internet through ISP, while acquires the IP address, and circuit with the another circuit linked to ISP is used from a terminal. by ISDN telephone An IP address is transmitted to the other-end end of a communications partner.
[0054] Drawing 3 is drawing before the telephone communication via the Internet showing the sequence of the ISDN telephone communication for transmission of an IP address in the gestalt of this 1st operation, drawing 4 is the flow chart of processing operation by the side of the master station at that time, and drawing 5 is the flow chart of processing operation by the side of the called terminal at that time. The master station of the following examples is the case where a terminal 1 and a called terminal are terminals 2.
[0055] First, with reference to these drawing 3 - drawing 5 , the sequence of the ISDN telephone communication before the telephone communication via the Internet in the gestalt of this operation is explained.
[0056] In addition, this ISDN telephone communication is performed by the root called the terminal 1-exchange SW1-exchange SW2-terminal 2 as a dotted line 5 shows drawing 1 . Moreover, communication via the Internet is performed by the root called the terminal 1-exchange SW1-exchange SWA-ISP-A-Internet 4-ISP-B-exchange SWB-exchange SW2-terminal 2 as a dotted line 6 shows drawing 1 .
[0057] In advance of this sequence, one circuit of ISDN is used, and is accessed at ISP-A, it connects with the Internet, and the terminal 1 which is a master station acquires an IP address, and is storing it in the buffer. And the operator (addresser) of a terminal 1 performs processing of ISDN which uses a line once again and transmits an IP address to a terminal 2 in the state where it connected with this Internet.
[0058] That is, as shown in drawing 3 A, the operator (addresser) of a terminal 2 performs call origination operation of inputting the telephone number of a terminal 2 while doing off-hook operation. Then, it is distinguished at Step S1 of drawing 4 , and it progresses to Step S2. At Step S2, it distinguishes whether the terminal concerned connects with the Internet now, if it does not connect [be / it] with the Internet, it will progress to Step S3, and the call setup message containing an addresser number is sent out like / in the case of the usual ISDN telephone /. And after that, it progresses to step S4 and the usual telephone call origination manipulation routine is performed.
[0059] When connecting with the Internet at Step S2 is distinguished, call setup messages including the self IP address progressed and acquired are sent out to Step S5. In this case, an IP address is sent as user user information included in a call setup message.
[0060] User user information is about 128 bytes, and with the gestalt of this operation, in

addition to an IP address, the other party's terminal connects to the Internet using an addresser name and the aforementioned IP address, and it sends simultaneously the application information (information on the telephone application of the Internet course in this case) for performing communication of addresser side and - end. In addition, when it is constituted so that a called terminal may be equipped with application, you may make it transmit the information which specifies the application to be used.

[0061] Thus, if a call setup message is sent out from a terminal 1, as shown in drawing 3 A, this call setup message will be sent to the terminal 2 as a called terminal through the exchange 1 and the exchange 2, and a call setup receptionist message will be sent to a master station 1 from the exchange 1. And as shown in drawing 5 , while detect having received this call setup message at Step S21, detecting arrival of the mail, progressing to the following step S22, generating ringing tone and telling an arrival-of-the-mail user about arrival of the mail in a called terminal 2, the call message which shows that ringing tone was generated is sent out (refer to drawing 3 B).

[0062] And in a called terminal 2, it progresses to Step S23 and the information on a master station is displayed on the display 15. That is, while an addresser number is displayed, when the IP address and the addresser name are included in the call setup message, the IP address and addresser name are also displayed on a display 15. Moreover, when application is also contained in the call setup message, the display which shows that application has been sent is also made. By the display of this display 15, a user can distinguish whether arrival of the mail is the arrival for the notice of the prior IP address for the usual telephone arrival and communication via the Internet.

[0063] The call message sent out from the called terminal 2 is sent to a master station 1 through the exchange 2 and the exchange 1, as shown in drawing 3 B. A master station 1 is Step S6, and if this call message is received, it will indicate that it progresses to Step S7 and ringing tone is sent out by the called terminal 2 by the display 15.

[0064] On the other hand, an action addressee looks at and checks the content displayed on the display 15 of a terminal 2, and decides whether to answer to this call. In a called terminal 2, if this action addressee judges whether it is the no by which response operation, for example, operation of a response key, was made at Step S24 and there is no response operation, it will progress to Step S25 and will be made to perform the usual response manipulation routine.

[0065] When an action addressee operates a response key, after it is detected at Step S24, progresses to Step S26 and saves the IP address in a call setup message, and the information on application in memory, it progresses to Step S27 and a cutting message is sent out.

[0066] This cutting message is sent to a master station 1 through the exchange 2 and the exchange 1, as shown in drawing 3 C. In a master station 1, this cutting message is detected at Step S8 of drawing 4 , and cutting is displayed on the display 15 by step S9. Moreover, the purport that the action addressee consented to the communication which went via the Internet specified by the addresser is displayed by the display 15.

[0067] Next a master station 1 progresses to Step S10, and sends out a release message. This release message is sent to a called terminal 2 through the exchange 1 and the exchange 2. In a called terminal 2, if this release message is detected at Step S28, it will progress to Step S29, and the completion message of release is sent out, and this routine is ended. ** [a master station's 1 detection of having received this completion message of release at Step S11 / end / a call origination manipulation routine / master station]

[0068] In this way, the IP address of the terminal 1 under connection with the Internet is transmitted to a terminal 2 by another circuit by one circuit. And after performing processing linked to the Internet and acquiring a self IP address at the terminal 2 which received this IP address, it can specify using the IP address which received the partner terminal, and it received, or the specified application can perform connection processing and communication via the Internet can be performed between a terminal 1 and a terminal 2 by advancing the communication demand of the end-end which specified the terminal 1.

[0069] Under the present circumstances, required information, such as an IP address, is used for what was saved in the memory of a terminal, being read. Moreover, it can also constitute from carrying out a specific key stroke, for example so that application may be made to perform the communication demand of the end-end which specified the terminal 1.

[0070] That is, communication between the terminal 1 via the Internet and a terminal 2 is performed by the sequence of D-H as shown after the sequence of drawing 3 A, B, and C mentioned above at drawing 6 and drawing 7 being performed. The sequence of the aforementioned D-H is explained with reference to drawing 7 . In addition, the sequence of drawing 7 D-F and drawing 7 H is a sequence for carrying out call origination to ISP and connecting with it from a communication terminal, and is the same as the usual ISDN arrival-and-departure call sequence.

[0071] First, in order to connect with the Internet 4, the operator (action addressee) of the called terminal 2 which acquired the IP address uses an ISDN circuit for ISP-B which he has made a contract of, and makes telephone connection. That is, as shown in drawing 7 D, call origination which carries out off-hook and makes ISP-B a called terminal at a terminal 2 is performed. Then, a call setup message is sent to ISP-B through the exchange SW2 and Exchange SWB from a terminal 2. In ISP-B which received this call setup message, as shown in drawing 7 E, while ringing tone occurs, a call message is sent out. At a terminal 2, a calling indicator is performed in response to this call message.

[0072] and corresponding to ringing tone, a response should off-hook-**-do by ISP-B -- with **, as shown in drawing 7 F, a response message is sent to a terminal 2 through Exchange SWB and the exchange SW2, and stops a calling indicator at a terminal 2 At this time, a response check message is sent to ISP-B from Exchange SWB. Above, it will be in the state which can connect the Internet which leads ISP-B of a terminal 2.

[0073] And after using an information channel during communication of drawing 7 G, performing a connection confirm with ISP (this procedure is completely the same as the conventional procedure) and completing connection with the Internet, from a terminal 2, a connection request is performed using the IP address of the received terminal 1, and the communication via the Internet between a terminal 1 and a terminal 2 is made to carry out.

[0074] Drawing 8 is drawing showing the connection sequence for communication of this Internet course. This connection sequence is performed and informational communication made into the purpose is performed as under the telephone call as telephone application via the Internet between a terminal 1 and a terminal 2. If the cutting directions from one of terminals occur, a communication line will be released and this communication will be ended, as shown in drawing 8 . Then, in order to end communication with ISP-B at a terminal 2, the sequence of drawing 7 H is performed.

[0075] The terminal 2 which transmitted the IP address to the terminal 2 through another circuit, and received this from the terminal 1 connected to the Internet as mentioned above connects with the Internet. By being made to perform communication by the telephone application via the Internet which makes a terminal 1 a communications partner, communication which went via the Internet can be directly performed between a terminal 1 and a terminal 2, without needing service like a rendezvous server.

[0076] In addition, although it was made to decide whether a master station include an IP address etc. in a call setup message by whether it is under [connection] ******, and make it transmit to the Internet with the form of the above operation, only when the key switch which includes an IP address etc. in a call setup message, and is made to carry out call origination and to direct is prepared in the key-switch section 14 and the key switch concerned is operated, you may be made to carry out call origination which included the IP address etc. in the call setup message.

[0077] In addition, even if application transmits only an IP address, without transmitting, it is easy to be natural [application].

[0078] Moreover, although the arrival-of-the-mail user was made to perform communication via the Internet in above-mentioned explanation using the terminal which acquired the IP address, since an IP address is displayed on a display 15, of course, it can also perform that the arrival-of-the-mail user who recorded it or memorized is made to perform communication via the Internet using a communication terminal which is different in a called terminal 2.

[0079] [The form of operation of the 2nd of a correspondence procedure], next the form of operation of the 2nd of the correspondence procedure by this invention are explained. In the form of the 2nd operation explained below After checking the operator of a terminal 1 and the operator of a terminal 2 talking over the telephone, and performing communication via the Internet It connects with the Internet by one terminal side, and the acquired IP address is transmitted to the end side of an other end, and like the case of the form of the above-mentioned operation of the end of an other end the IP address was acquired, it connects with the Internet and is made to perform telephone communication via the Internet shown in drawing 8 .

[0080] Although a terminal 1 side is in the state linked to the Internet and the IP address was beforehand transmitted by ISDN telephone communication to the terminal 2 with the form of the 1st operation of a ****, one circuit of one of terminals does not need to be beforehand connected to the Internet with the form of this 2nd operation.

[0081] The sequence diagram in the case of the form of this 2nd operation is shown in drawing 9 . In this drawing 9 , A-C is completely the same as that of a sequence until an action addressee answers in the case of the usual ISDN telephone.

[0082] Although drawing 9 A-B is the same as that of drawing 3 A-B, as mentioned above, the terminal 1 side does not need to be connected to the Internet, and the information on an IP address or application is not included in a call setup message.

[0083] And in the case of the form of this 2nd operation, at a terminal 2, as shown in drawing 9 C*, it answers by carrying out off-hook according to ringing tone. Then, a response message is sent to the exchange SW2 from a called terminal 2, and a response check message is answered by the terminal 2 from the exchange SW2. And since a response message is sent to a master station 1 from the exchange SW1 at this time, a calling indicator is stopped in a master station 1. Thereby, between a terminal 1 and a terminal 2, in drawing 1 , it connects by the root shown by the dotted line 5, and will be in the state (refer to drawing 9 J) of the telephone communication (under a telephone call) which leads the ISDN circuit 3.

[0084] With the form of this 2nd operation, it checks carrying out communication via the Internet between an addresser and an action addressee during this telephone call by telephone call. And in that case, for example, talks, an IP address is sent from a terminal 1 and it fixes that it is made to carry out the connection request of communication by the Internet course from a terminal 2 etc. And according to this agreement, in this example, processing connected to the Internet through another circuit by the terminal 1 side is performed, and the IP address of a terminal 1 is acquired.

[0085] Through the circuit under telephone call [IP address / of the acquired self terminal], the operator of a terminal 1 advances a Request to Send so that it may transmit to a terminal 2. This Request to Send is made by pushing the master station information Request-to-Send key beforehand defined as one key of the key-switch section 14 of the terminal shown in drawing 2 .

[0086] A terminal 1 will transmit the master station information which consists of an acquired IP address, and the information on an addresser name and others, for example, the information on application, to a terminal 2 as a user information message according to the software program beforehand registered into the control section 11, if it detects that this master station information Request-to-Send key was pushed. In this case, this user information message is transmitted in the form of the user user information mentioned above (refer to drawing 9 K).

[0087] If this user information message is received, a called terminal 2 displays the information on the master station which received, i.e., an IP address and an addresser name, and the information on application on a display 15, and saves these information in memory. By this display, an action addressee checks acquisition of an IP address etc. and it carries out on-hook operation for line disconnection. Thereby, as shown in drawing 9 L, a cutting message is transmitted to a terminal 1 through the exchange SW2-exchange SW1, and a cutting display is made by the display 15 by the side of a terminal 1. And a release message is sent to a terminal 2 through the exchanges SW1 and SW2 from a terminal 1 side, and a circuit is released during a telephone call because the terminal 2 which received this transmits the completion message of release to a terminal 1 through the exchanges SW2 and SW1.

[0088] Then, communication which went via the Internet is performed by the sequence shown in drawing 7 D-H of the form of the 1st operation of the above-mentioned, and the completely same sequence between a terminal 2 and a terminal 1 from the terminal 2 side which acquired the IP address etc.

[0089] Although each form of operation beyond [the form of operation of the 3rd of a correspondence procedure] is the case of communication between individual computer terminals, this invention is applicable also to remote-control communication system.

[0090] For example, the case of remote monitoring system is taken for an example as remote-control communication system. In this case, a communication demand is advanced from the surveillance pin center,large as a remote-control pin center,large to a supervisory equipment terminal equipped with for example, the surveillance camera and the sensor for surveillance as a remote-control-ed terminal, and the video information and sensor print-out which were photoed with the camera are received from a supervisory equipment terminal in the surveillance pin center,large. In addition, with the form of this operation, both the surveillance pin center,large and the supervisory equipment terminal are connected to the ISDN circuit.

[0091] Drawing 10 is a flow chart which shows the flow of operation of the surveillance pin center,large in this remote monitoring system. Moreover, drawing 11 is a flow chart which shows the flow of operation of a supervisory equipment terminal.

[0092] First, a surveillance pin center,large is Step S31, performs processing connected to the Internet using 1 of an ISDN circuit circuit, and acquires the IP address of self [Step S32]. And to a supervisory equipment terminal, by another another circuit of an ISDN circuit, master station information, such as a self IP address and information on application, is included in the user user information in a call setup message, and it transmits at Step S33.

[0093] If the call setup message by the call origination from this surveillance pin center,large is detected at Step S41, a supervisory equipment terminal progresses to Step S42, generates ringing tone, and sends out a call message. And the master station information included in a call setup message is analyzed and checked at the following step S43, and it distinguishes whether it is the addresser number (numbering number) which shows beforehand the surveillance pin center,large registered into the supervisory equipment terminal in Step S44. When the call in was not a thing from a surveillance pin center,large and it distinguishes as a result of this distinction, it progresses to Step S45 and a response is not carried out. And when [in Step S44] it distinguishes that a call in is a thing from a surveillance pin center,large as a result of distinction, automatic answering is progressed and carried out to Step S46. The security of automatic answering is secured by distinction of being a surveillance pin center,large by this numbering number.

[0094] The information on an IP address or application is saved at the following step S47 after this automatic answering. And a cutting message is sent out like the case of drawing 3 C at Step S48.

[0095] Like the case where Step S34 shows to above-mentioned drawing 3 in response to this cutting message, a surveillance pin center,large sends out a release message, waits for the completion message of release from a supervisory equipment terminal, and releases the circuit of the direction connected with the supervisory equipment terminal. On the other hand, in response to the release message from a surveillance pin center,large, a supervisory equipment terminal sends out the completion message of release, and performs circuit release.

[0096] Next, a supervisory equipment terminal performs processing linked to the Internet, and advances the communication demand of the telephone communication via the Internet with a surveillance pin center,large by Step S49 with the specified application using the IP address of the surveillance pin center,large which is the following step S50 and was acquired, and the video information and sensor information which should be sent from a supervisory equipment terminal at the following step S51 are transmitted to a surveillance pin center,large via the Internet. And if it checks that transmission has been completed at Step S52, it will progress to Step S53 and release processing of the circuit linked to the Internet will be performed.

[0097] On the other hand, a surveillance pin center,large is Step S35, answers to the connection request from the supervisory equipment terminal which goes via the Internet, and receives the information sent from a supervisory equipment terminal at the following step S36. And detection of having become a reception end at the following step S37 performs release processing of the circuit connected to the Internet at the following step S38.

[0098] In this way, the remote-control communication system which led the Internet is realizable. In this case, since information can be transmitted and cheap communication can be performed by communication which led the Internet whether between a surveillance pin center,large and supervisory equipment terminals is a long distance comparatively or the information to transmit is large capacity and, expansion of the cost cut of remote-control communication system and the use range of remote-control service is expectable.

[0099] In addition, in the example of drawing 11 , although the numbering number was made to perform, it is made for the security of automatic answering to include the password beforehand defined into the information at the time of call origination, such as a call setup message from a surveillance pin center,large, and only when a supervisory equipment terminal detects this password, it can secure security by being made to carry out automatic answering.

[0100] Modification] which is others [▯ Although the above explained the case where it communicated using an ISDN circuit, this invention is not limited to the classification of a communication line. For example, it is applicable if connectable with two or more partners even if it is an analog telephone line, a radio circuit, a CATV (CATV) network, etc.

[0101] Moreover, although explained as application taking the case of the telephone via the Internet, this invention is not limited to the kind of application and communication network.

[0102] Moreover, the composition of a terminal does not need to be one apparatus as shown in drawing 2 , and the communication-interface section may be another composition like an external modem.

[0103] Moreover, the transmitting method of information, such as an IP address and application, is not restricted to the method of transmitting as the above call setup messages or a user information message. For example, as long as it is an analog telephone line, you may transmit using a dial tone and may make it transmit data using a modem. Moreover, you may make it transmit using the sub-address of an ISDN circuit. Furthermore, it is made to correspond to an addresser number and the information on application or an addresser name is registered beforehand, and from an addresser number, the information ******** registered is read and it can be used as transmit information.

[0104]

[Effect of the Invention] As explained above, even if the address information on the network of the partner point required for communicative connection does not use service like a rendezvous server in the communication mode which is not understood in advance according to this invention, the end-end which led the aforementioned network can be communicated directly.

[Translation done.]

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TECHNICAL FIELD

[The technical field to which invention belongs] This invention is the communication which led the communication network network, for example, is applied to the communication mode which connection place information required for connection does not understand in advance like an Internet telephone, and relates to a suitable correspondence procedure and a suitable communication terminal.

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PRIOR ART

[Description of the Prior Art] The Internet is known as a global computer network. The Internet is the computer network network which connected the computer networks which exist in a company, a university, etc. of every country in the world through the broader-based circuit, and is spread around the whole world. Various services which already used the Internet, such as electronic mail service, and file transfer service, information retrieval service, are offered.
[0003] Drawing 12 shows the outline of the Internet. The portions NET101, NET102, and NET103 surrounded and shown with a slash in drawing 12 and -- are computer networks. These computer networks NET101, NET102, and NET103 and -- have two or more terminals T, T, and T and --, respectively. Each computer networks NET101, NET102, and NET103, the terminals T, T, and T of --, and -- are connected by LAN (Local Area Network), respectively. Ethernet, the token ring, etc. are used as a gestalt of LAN.
[0004] Each computer networks NET101, NET102, and NET103 and -- are mutually connected through routers R101, R102, and R103 and --. Routers R101, R102, and R103 and -- perform routing processing which delivers the data on a computer network to a computer network by the destination.
[0005] Thus, computer networks NET101, NET102, and NET103 and -- are connected through routers R101, R102, and R103 and --, and the computer network network is built. Such a computer network network is called Internet. By the Internet, the thing of the computer networks NET101, NET102, and NET103 in the world and -- for which data are transmitted becomes possible in between.
[0006] In the Internet, IP (Internet Protocol) is used as a protocol of a Network layer. In IP, an IP address is assigned to each terminal and the point which transmits one DE evening is discriminated by the IP address. An IP address is what collected four numbers which can be expressed with 8 bits, and consists of binary digits, for example, is expressed like "43.3.25.24.6."
[0007] It is apprehensive about shortage of an IP address as the Internet spreads. Then, there are many terminals registered on a certain network, and in the case where there are few terminals actually connected, in order to save an IP address, only when it has on a network the server which assigns an IP address and the terminal is actually connected, a vacant IP address may be assigned. If it does in this way, only the number of a terminal does not need to prepare an IP address and a limited number of IP addresses can be used effectively.
[0008] In the Internet, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) are used as a protocol of a transport layer. TCP has the function which carries out ** which communicates after making so-called connection type communication connection, packet turn control, retransmission of message, a flow control, and a congestion control UDP is a connectionless type protocol, and when real time nature is required, it is used instead of TCP. For example, in digital speech communications, even if a part of packet falls, it does not carry out requiring the resending, but voice is sent without a way piece. In the case of such speech communication, UDP is used.
[0009] Thus, fundamentally in the Internet, the protocol of TCP/IP is used. That is, an IP address is assigned to the terminal of a computer network and this IP address is used for discernment of a terminal. And a packet is transmitted by TCP or UDP.

[0010] However, necessarily, if an individual computer is tied with LAN, it may not be broken, and it may not have the IP address. Then, when an individual participates in the Internet, the company called Internet service provider is used. If an Internet service provider (it is hereafter described as ISP) is used, the telephone line will be used, for example, an individual computer will be connected to a computer network by PPP (Point to Point Protocol) or SLIP (Serial Line IP), and it will become possible to participate in the Internet.

[0011] Drawing 13 is drawing for explaining an example of ISP. The computer network NET 151 of ISP has SA 1 BA S151 and the router R151. The server S151 is connected to the dial-up line network TEL 151 through two or more modems M151, M152, and M153 and --.

[0012] Terminals T151, T152, and T153 and -- are the terminals of those who participate in the Internet individually. Terminals T151, T152, and T153 and -- are connected to the dial-up line network TEL 151 through a modem (not shown). As the individual terminals T151, T152, and T153 and --, one personal KOMPYU evening which has a serial port can be used.

[0013] When participating in the Internet using ISP, it is common that a contract is beforehand made with a user and the company of ISP. If the contract of a user and ISP is made, an account name and a password will be sent to a user.

[0014] In participating in the Internet from the individual terminals T151, T152, and T153 and --, a user calls to ISP and calls the computer network NET 151 of ISP. If a call is received, a server S151 will require the input of an account name and a password, and will attest whether the contract is made between ISP.

[0015] If the account name and password which were inputted are right and it is attested that the contract is made between ISP, if a server S151 searches a vacant IP address and has a vacant IP address, it will be assigned to the terminals T151, T152, and T153 and -- which are going to participate in the Internet by making this IP address into a temporary IP address. A temporary IP address is attached to terminals T151, T152, and T153 and -- by this, and it can connect now with the Internet.

[0016] In addition, although PPP connection is made using the telephone line, you may make it use ISDN (Integrated Service Digital Network) in the example of above-mentioned explanation. As for ISDN64, two and D channels of 16kbps become [B channels of 64kbps(es)] one circuit from three channels in the one sum total. It can use as a circuit of 64kbps by passing IP packet the place base using ISDN, and on B channels. That is, since there are B channels [two], in ISDN, two circuits can be substantially used independently under the treaty of the one telephone line.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, even if the address information on the network of the partner point required for communicative connection does not use service like a rendezvous server in the communication mode which is not understood in advance according to this invention, the end-end which led the aforementioned network can be communicated directly.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] The Internet telephone which telephones to the other party using the Internet explained above attracts attention. Since the Internet can carry out free ****** fundamentally, in the Internet telephone which talks over the telephone using the Internet, it becomes possible to be able to talk over the telephone only by the charge produced by the contract with ISP, the telephone rate to ISP, or the toll of ISDN, and to perform a long-distance telephone and an international call at a very cheap charge.
[0018] However, I hear that the greatest trouble of an Internet telephone cannot call the terminal of the user who has participated in the Internet individually by PPP connection etc., and there is.
[0019] That is, by the Internet, as mentioned above, although used for specification of a communication place in an IP address, only when connection is required of the terminal of the user who contracted with ISP and has participated in the Internet by PPP, an IP address is temporarily assigned to it, and it does not always connect with it. For this reason, since the partner who usually makes PPP connection using ISP does not understand a partner's IP address in advance now even if he is going to talk over the telephone considering the terminal of the user who has participated in the Internet by PPP as the partner point when PPP connection is not made, the partner point cannot be called directly.
[0020] In addition, for the terminal of LAN which exists in the company which is not connected to the Internet through ISP but is directly connected to the Internet, a university, etc., it is ****** to call fundamentally, using an IP address, since an IP address is assigned and it is always working.
[0021] However, in order to save an IP address, the terminal of such LAN may also assign a vacant IP address, only when it has on a network the server which assigns an IP address and the terminal is actually connected (DHCP;Dynamic Host Configuration Protocol). Since it does not decide an IP address uniquely in making into the partner point the terminal with which an IP address is assigned temporarily in this way even if it is the terminal of LAN which exists in a company, a university, etc., it cannot know in advance like the telephone number, and the specific partner point cannot be called.
[0022] In order to solve this trouble, there is service which offers the IP address of the partner point required for communication like the so-called rendezvous server. That is, those who receive this service switch on the power supply of their own computer, and log in to a server. And if the list of persons to which it logged in is required from a server, the list of service contractors to which it logs in then will be sent to a server. A service contractor chooses the partner he wants to talk over the telephone from the lists, and notifies to a server. Then, a server is an end with a partner by using this IP address, since the selected partner's IP address is offered. - It can communicate now by and (PPP).
[0023] However, when this service was used, there were following un-arranging. That is, communication is impossible, unless it is, after both who perform ** communication put the power supply of each other into their own computer and register with the server of service like the above-mentioned rendezvous server, when it is going to communicate via the Internet using this service. in addition -- since the computer terminal is not necessarily automatically deleted

from a list when the power supply of a computer is dropped, after appearing in a list, just because it is in a list -- surely -- a partner -- a computer -- a power supply -- supplying -- ****** in which communication connection is possible -- being certain -- dividing -- coming out -- there is nothing

** The charge of use of a server is needed.

** Since the login information on a server, i.e., its IP address, is exhibited substantially, privacy is not maintained.

** The unnecessary arrival from terminals other than the terminal which wants to communicate again since it is opened to a list occurs.

** When the server is downed, it cannot communicate. There is un-arranging [to say].

[0024] This invention aims at the ability of communication of the end-end which led to be made to do a network, even if the address information on the network of the partner point required for communicative connection does not use the so-called above rendezvous servers etc. in the communication mode which is not understood in advance in view of the above point.

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MEANS

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, it sets to this invention. When it is the method of communicating through a communication network and a communication terminal is connected to the aforementioned communication network In the correspondence procedure to which the address of the aforementioned communication terminal on the aforementioned communication network is assigned dynamically In advance of the communication which leads the aforementioned communication network, a circuit other than the circuit which communicates through the aforementioned communication network is led. The information which includes the address on the aforementioned communication network of a self communication terminal at least It transmits to the communicative other party and the other party of the aforementioned communication is characterized by performing communication which led the aforementioned communication network because the communication demand to which it led sends out the aforementioned communication network using the address acquired through the circuit according to above.

[0026] In the correspondence procedure by this invention of above-mentioned composition, the address on the network of the terminal, for example, an IP address, is transmitted to the other party of communication beforehand from the direction which serves as a destination side in the communication which leads a communication network. If the other party who acquired this IP address performs the communication demand which leads a communication network considering this IP address as an IP address of a communications partner and there is a partner's response, the communication and the telephone call which led the aforementioned communication network will be performed.

[0027]

[Embodiments of the Invention] When performing hereafter end - and communication (communication between terminals) which led the Internet among individuals in the gestalt of operation of the correspondence procedure by this invention, the case of the telephone via the Internet is explained referring to drawing.

[0028] Drawing 1 shows the outline of communication network composition in which the correspondence procedure of the gestalt of this operation is applied. In drawing 1 , a communication terminal 1 and a communication terminal 2 are individual computers, and carry the application which can perform telephone communication which leads the Internet as the software, respectively.

[0029] In addition, since this application may be sent from the communicative other party so that it may mention later, it does not necessarily need to be carried in a terminal from the beginning.

[0030] In the case of the gestalt of this operation, the telephone lines 3 and 3 to which a terminal 1 and a terminal 2 are connected are ISDN circuits, and as the above-mentioned was also carried out, they are substantially equipped independently with the line-of-contact capacity for two usable circuits. The exchange SW1 is for performing the telephone exchange to a terminal 1. Moreover, the exchange SW2 is for performing the telephone exchange to a terminal 2.

[0031] ISP-A is an Internet service provider which the user of a terminal 1 has made a contract of. Moreover, ISP-B is an Internet service provider which the user of a terminal 2 has made a contract of. These ISP-A and ISP-B are constituted including the terminal adapter (TA) and the server, and the router as shown in drawing 3 , respectively, although not further illustrated to drawing 1 .

[0032] Exchange SWA is for performing the telephone exchange to ISP-A, and Exchange SWB is for performing the telephone exchange to ISP-B. ISP-A and ISP-B are connected to the Internet 4.

[0033] Exchanges SW1, SW2, SWA, and SWB are the so-called exchanges of an ISDN public line network. It follows, for example, by call origination operation by the usual telephone number, the call is made to receive a message in a terminal 2, ISP-A, or ISP-B, and a terminal 1 can be communicated to it.

[0034] However, as mentioned above, in order to communicate the end-end which leads the Internet 4 from a terminal 1 to a terminal 2, a terminal 1 must acquire the IP address of a terminal 2 in advance. And if the IP address of a partner terminal is known, it will become possible to communicate the end-end which goes via ISP-A-> Internet 4 ->ISP-B by the packet including a self IP address and a partner's IP address.

[0035] Next, the composition of communication terminals 1 and 2 is explained. With the gestalt of this operation, it has composition with completely same a communication terminal 1 and a communication terminal 2. The block diagram of the composition of the communication terminal of the gestalt of this operation is shown in drawing 2 .

[0036] As mentioned above, the communication terminal of the gestalt of this operation is constituted by the individual computer, and to the system bus 10, a control section 11, the data-processing section 12, the speech processing section 13, the key-switch section 14, a display 15, the ISDN interface section 16, the hand-set section 17, a switching circuit 18, and the ringer generating section 19 are connected, and it is constituted.

[0037] A control section 11 controls the whole terminal. Moreover, a control section 11 has two incomes with the data-processing section 12, and performs required data processing, such as protocol processing to the data sent via the Internet, and processing which generates the data transmitted via the Internet.

[0038] In the case of the telephone communication via the Internet, since voice data is compressed and transmitted, the speech processing section 13 performs processing which elongates the voice data which compressed the voice data which transmits and received.

[0039] The key-switch section 14 is equipped with the key switch of a dialing key and others. It is recognized by the control section 11 which is the operated key, and a control section 11 performs control corresponding to it. Moreover, with the gestalt of this operation, a response key is prepared in the key-switch section 14. This response key is operated when it is a thing for transmission of the prior IP address of the communication of arrival of the mail by the Internet course. If this response key is operated, unlike the usual off-hook operation, a terminal will send out a cutting message and will cut a circuit.

[0040] A display 15 displays information required in order that the display of the telephone number which it keyed etc. may be performed or the numbering number (partner telephone number) and called terminal which received at the time of the arrival from an ISDN line network and which are contained in master station information may communicate at the time of call origination. Moreover, the display of the purport that the other party consented to the communication which leads the Internet is also performed by the gestalt of this operation by this display 15 so that it may mention later.

[0041] It connects with a circuit 3 and the ISDN interface section 16 enables communication of 2B+D (two channels [B] and one channels [D]) in this example.

[0042] The hand-set section 17 carries out A/D conversion of the sound signal which carried out D/A conversion of the received digitized voice data which were obtained from the switching circuit 18, changed into the analog sound signal, and outputted to loudspeaker 17S, and was inputted from microphone 17M, and outputs it to a switching circuit 18.

[0043] A switching circuit 18 is switched by the control section 11, and is controlled, and in the case of the usual ISDN telephone, it is switched at the a side, and, in the case of the telephone via the Internet, is switched at the d side, respectively.

[0044] The ringer generating section 19 generates a ringer (bell sound) in order to tell an arrival-of-the-mail user about it at the time of arrival of the mail.

[0045] It is as follows when this terminal operates as an ISDN telephone. That is, at this time, a switching circuit 18 is switched to the a side which is in the state of illustration. And D/A conversion of the digitized voice data received in the ISDN interface section 16 is supplied and carried out to the hand-set section 17 through a switching circuit 18, they are supplied to loudspeaker 17S, and are outputted as a receiver voice.

[0046] Moreover, A/D conversion of the transmission sound signal inputted from microphone 17M is carried out in the hand-set section 17, it is used as digitized voice data, and is sent out to the ISDN circuit 3 through the ISDN interface section 16 through a switching circuit 18.

[0047] Next, it is as follows when a terminal carries out telephone operation via the Internet. That is, at this time, a switching circuit 18 is switched to the b side which is in a state contrary to the state of illustration. And protocol processing is carried out by the control section 11, and the voice data received in the ISDN interface section 16 from the ISDN circuit 3 via the Internet is handed over by the speech processing section 13. The speech processing section 13 elongates the received data, and hands them over in the hand-set section 17 through a switching circuit 18. In the hand-set section 17, D/A conversion is carried out and it is outputted by loudspeaker 17S as a receiver voice.

[0048] Moreover, A/D conversion of the transmission sound signal inputted from microphone 17M is carried out in the hand-set section 17, it is used as digitized voice data, is handed over and compressed into the speech processing section 13 through a switching circuit 18, and is handed over by the control section 11. By having two incomes with the data-processing section 12, the received voice data is changed into the data stream which should transmit according to the telephone application protocol in the Internet, and a control section 11 sends it out to the ISDN circuit 3 through the ISDN interface section 16.

[0049] Operation of the telephone communication via the Internet is explained below using the terminal 1 of the above composition, and a terminal 2.

[0050] In the gestalt of this operation, when performing telephone communication via the Internet, for example between a terminal 1 and a terminal 2, in advance of the telephone communication via this Internet, the IP address of one terminal to the terminal concerned is transmitted to the other-end end of a communications partner.

[0051] And it connects with the Internet through ISP and the terminal side which received the IP address acquires a self IP address. And dispatch according to the protocol of the Internet which sends out a call setup message including this self IP address and the IP address of the received communications partner is performed. Thereby, between two terminals, it will connect via the Internet and communication becomes possible.

[0052] The gestalt of some operations of the correspondence procedure by this invention is explained. In the following explanation, the side which acquires a master station and this IP address for the side which sends a self IP address to a partner terminal by ISDN telephone will be called called terminal in advance of the telephone communication via the Internet.

[0053] In the gestalt of this 1st operation [the gestalt of operation of the 1st of a correspondence procedure] -- For example, when performing telephone communication via the Internet between a terminal 1 and a terminal 2 In advance of the telephone communication via this Internet, it connected with the Internet through ISP, while acquires the IP address, and circuit with the another circuit linked to ISP is used from a terminal. by ISDN telephone An IP address is transmitted to the other-end end of a communications partner.

[0054] Drawing 3 is drawing before the telephone communication via the Internet showing the sequence of the ISDN telephone communication for transmission of an IP address in the gestalt of this 1st operation, drawing 4 is the flow chart of processing operation by the side of the master station at that time, and drawing 5 is the flow chart of processing operation by the side of the called terminal at that time. The master station of the following examples is the case where a terminal 1 and a called terminal are terminals 2.

[0055] First, with reference to these drawing 3 - drawing 5 , the sequence of the ISDN telephone communication before the telephone communication via the Internet in the gestalt of this operation is explained.

[0056] In addition, this ISDN telephone communication is performed by the root called the terminal 1-exchange SW1-exchange SW2-terminal 2 as a dotted line 5 shows drawing 1 . Moreover, communication via the Internet is performed by the root called the terminal 1-exchange SW1-exchange SWA-ISP-A-Internet 4-ISP-B-exchange SWB-exchange SW2-terminal 2 as a dotted line 6 shows drawing 1 .

[0057] In advance of this sequence, one circuit of ISDN is used, and is accessed at ISP-A, it connects with the Internet, and the terminal 1 which is a master station acquires an IP address, and is storing it in the buffer. And the operator (addresser) of a terminal 1 performs processing of ISDN which uses a line once again and transmits an IP address to a terminal 2 in the state where it connected with this Internet.

[0058] That is, as shown in drawing 3 A, the operator (addresser) of a terminal 2 performs call origination operation of inputting the telephone number of a terminal 2 while doing off-hook operation. Then, it is distinguished at Step S1 of drawing 4 , and it progresses to Step S2. At Step S2, it distinguishes whether the terminal concerned connects with the Internet now, if it does not connect [be / it] with the Internet, it will progress to Step S3, and the call setup message containing an addresser number is sent out like / in the case of the usual ISDN telephone /. And after that, it progresses to step S4 and the usual telephone call origination manipulation routine is performed.

[0059] When connecting with the Internet at Step S2 is distinguished, call setup messages including the self IP address progressed and acquired are sent out to Step S5. In this case, an IP address is sent as user user information included in a call setup message.

[0060] User user information is about 128 bytes, and with the gestalt of this operation, in addition to an IP address, the other party's terminal connects to the Internet using an addresser name and the aforementioned IP address, and it sends simultaneously the application information (information on the telephone application of the Internet course in this case) for performing communication of addresser side and - end. In addition, when it is constituted so that a called terminal may be equipped with application, you may make it transmit the information which specifies the application to be used.

[0061] Thus, if a call setup message is sent out from a terminal 1, as shown in drawing 3 A, this call setup message will be sent to the terminal 2 as a called terminal through the exchange 1 and the exchange 2, and a call setup receptionist message will be sent to a master station 1 from the exchange 1. And as shown in drawing 5 , while detect having received this call setup message at Step S21, detecting arrival of the mail, progressing to the following step S22, generating ringing tone and telling an arrival-of-the-mail user about arrival of the mail in a called terminal 2, the call message which shows that ringing tone was generated is sent out (refer to drawing 3 B).

[0062] And in a called terminal 2, it progresses to Step S23 and the information on a master station is displayed on the display 15. That is, while an addresser number is displayed, when the IP address and the addresser name are included in the call setup message, the IP address and addresser name are also displayed on a display 15. Moreover, when application is also contained in the call setup message, the display which shows that application has been sent is also made. By the display of this display 15, a user can distinguish whether arrival of the mail is the arrival for the notice of the prior IP address for the usual telephone arrival and communication via the Internet.

[0063] The call message sent out from the called terminal 2 is sent to a master station 1 through the exchange 2 and the exchange 1, as shown in drawing 3 B. A master station 1 is Step S6, and if this call message is received, it will indicate that it progresses to Step S7 and ringing tone is sent out by the called terminal 2 by the display 15.

[0064] On the other hand, an action addressee looks at and checks the content displayed on the display 15 of a terminal 2, and decides whether to answer to this call. In a called terminal 2, if this action addressee judges whether it is the no by which response operation, for example, operation of a response key, was made at Step S24 and there is no response operation, it will progress to Step S25 and will be made to perform the usual response manipulation routine.

[0065] When an action addressee operates a response key, after it is detected at Step S24,

progresses to Step S26 and saves the IP address in a call setup message, and the information on application in memory, it progresses to Step S27 and a cutting message is sent out.
[0066] This cutting message is sent to a master station 1 through the exchange 2 and the exchange 1, as shown in drawing 3 C. In a master station 1, this cutting message is detected at Step S8 of drawing 4 , and cutting is displayed on the display 15 by step S9. Moreover, the purport that the action addressee consented to the communication which went via the Internet specified by the addresser is displayed by the display 15.
[0067] Next a master station 1 progresses to Step S10, and sends out a release message. This release message is sent to a called terminal 2 through the exchange 1 and the exchange 2. In a called terminal 2, if this release message is detected at Step S28, it will progress to Step S29, and the completion message of release is sent out, and this routine is ended. ** [a master station's 1 detection of having received this completion message of release at Step S11 / end / a call origination manipulation routine / master station]
[0068] In this way, the IP address of the terminal 1 under connection with the Internet is transmitted to a terminal 2 by another circuit by one circuit. And after performing processing linked to the Internet and acquiring a self IP address at the terminal 2 which received this IP address, it can specify using the IP address which received the partner terminal, and it received, or the specified application can perform connection processing and communication via the Internet can be performed between a terminal 1 and a terminal 2 by advancing the communication demand of the end-end which specified the terminal 1.
[0069] Under the present circumstances, required information, such as an IP address, is used for what was saved in the memory of a terminal, being read. Moreover, it can also constitute from carrying out a specific key stroke, for example so that application may be made to perform the communication demand of the end-end which specified the terminal 1.
[0070] That is, communication between the terminal 1 via the Internet and a terminal 2 is performed by the sequence of D-H as shown after the sequence of drawing 3 A, B, and C mentioned above at drawing 6 and drawing 7 being performed. The sequence of the aforementioned D-H is explained with reference to drawing 7 . In addition, the sequence of drawing 7 D-F and drawing 7 H is a sequence for carrying out call origination to ISP and connecting with it from a communication terminal, and is the same as the usual ISDN arrival-and-departure call sequence.
[0071] First, in order to connect with the Internet 4, the operator (action addressee) of the called terminal 2 which acquired the IP address uses an ISDN circuit for ISP-B which he has made a contract of, and makes telephone connection. That is, as shown in drawing 7 D, call origination which carries out off-hook and makes ISP-B a called terminal at a terminal 2 is performed. Then, a call setup message is sent to ISP-B through the exchange SW2 and Exchange SWB from a terminal 2. In ISP-B which received this call setup message, as shown in drawing 7 E, while ringing tone occurs, a call message is sent out. At a terminal 2, a calling indicator is performed in response to this call message.
[0072] and corresponding to ringing tone, a response should off-hook-**-do by ISP-B -- with **, as shown in drawing 7 F, a response message is sent to a terminal 2 through Exchange SWB and the exchange SW2, and stops a calling indicator at a terminal 2 At this time, a response check message is sent to ISP-B from Exchange SWB. Above, it will be in the state which can connect the Internet which leads ISP-B of a terminal 2.
[0073] And after using an information channel during communication of drawing 7 G, performing a connection confirm with ISP (this procedure is completely the same as the conventional procedure) and completing connection with the Internet, from a terminal 2, a connection request is performed using the IP address of the received terminal 1, and the communication via the Internet between a terminal 1 and a terminal 2 is made to carry out.
[0074] Drawing 8 is drawing showing the connection sequence for communication of this Internet course. This connection sequence is performed and informational communication made into the purpose is performed as under the telephone call as telephone application via the Internet between a terminal 1 and a terminal 2. If the cutting directions from one of terminals occur, a communication line will be released and this communication will be ended, as shown in drawing

8 . Then, in order to end communication with ISP-B at a terminal 2, the sequence of drawing 7 H is performed.

[0075] The terminal 2 which transmitted the IP address to the terminal 2 through another circuit, and received this from the terminal 1 connected to the Internet as mentioned above connects with the Internet. By being made to perform communication by the telephone application via the Internet which makes a terminal 1 a communications partner, communication which went via the Internet can be directly performed between a terminal 1 and a terminal 2, without needing service like a rendezvous server.

[0076] In addition, although it was made to decide whether a master station include an IP address etc. in a call setup message by whether it is under [connection] ******, and make it transmit to the Internet with the gestalt of the above operation, only when the key switch which includes an IP address etc. in a call setup message, and is made to carry out call origination and to direct is prepared in the key-switch section 14 and the key switch concerned is operated, you may be made to carry out call origination which included the IP address etc. in the call setup message.

[0077] In addition, even if application transmits only an IP address, without transmitting, it is easy to be natural [application].

[0078] Moreover, although the arrival-of-the-mail user was made to perform communication via the Internet in above-mentioned explanation using the terminal which acquired the IP address, since an IP address is displayed on a display 15, of course, it can also perform that the arrival-of-the-mail user who recorded it or memorized is made to perform communication via the Internet using a communication terminal which is different in a called terminal 2.

[0079] [The gestalt of operation of the 2nd of a correspondence procedure], next the gestalt of operation of the 2nd of the correspondence procedure by this invention are explained. In the gestalt of the 2nd operation explained below After checking the operator of a terminal 1 and the operator of a terminal 2 talking over the telephone, and performing communication via the Internet It connects with the Internet by one terminal side, and the acquired IP address is transmitted to the end side of an other end, and like the case of the gestalt of the above-mentioned operation of the end of an other end the IP address was acquired, it connects with the Internet and is made to perform telephone communication via the Internet shown in drawing 8 .

[0080] Although a terminal 1 side is in the state linked to the Internet and the IP address was beforehand transmitted by ISDN telephone communication to the terminal 2 with the gestalt of the 1st operation of a ****, one circuit of one of terminals does not need to be beforehand connected to the Internet with the gestalt of this 2nd operation.

[0081] The sequence diagram in the case of the gestalt of this 2nd operation is shown in drawing 9 . In this drawing 9 , A-C is completely the same as that of a sequence until an action addressee answers in the case of the usual ISDN telephone.

[0082] Although drawing 9 A-B is the same as that of drawing 3 A-B, as mentioned above, the terminal 1 side does not need to be connected to the Internet, and the information on an IP address or application is not included in a call setup message.

[0083] And in the case of the gestalt of this 2nd operation, at a terminal 2, as shown in drawing 9 C*, it answers by carrying out off-hook according to ringing tone. Then, a response message is sent to the exchange SW2 from a called terminal 2, and a response check message is answered by the terminal 2 from the exchange SW2. And since a response message is sent to a master station 1 from the exchange SW1 at this time, a calling indicator is stopped in a master station 1. Thereby, between a terminal 1 and a terminal 2, in drawing 1 , it connects by the root shown by the dotted line 5, and will be in the state (refer to drawing 9 J) of the telephone communication (under a telephone call) which leads the ISDN circuit 3.

[0084] With the gestalt of this 2nd operation, it checks carrying out communication via the Internet between an addresser and an action addressee during this telephone call by telephone call. And in that case, for example, talks, an IP address is sent from a terminal 1 and it fixes that it is made to carry out the connection request of communication by the Internet course from a terminal 2 etc. And according to this agreement, in this example, processing connected to the

Internet through another circuit by the terminal 1 side is performed, and the IP address of a terminal 1 is acquired.

[0085] Through the circuit under telephone call [IP address / of the acquired self terminal], the operator of a terminal 1 advances a Request to Send so that it may transmit to a terminal 2. This Request to Send is made by pushing the master station information Request-to-Send key beforehand defined as one key of the key-switch section 14 of the terminal shown in drawing 2 .

[0086] A terminal 1 will transmit the master station information which consists of an acquired IP address, and the information on an addresser name and others, for example, the information on application, to a terminal 2 as a user information message according to the software program beforehand registered into the control section 11, if it detects that this master station information Request-to-Send key was pushed. In this case, this user information message is transmitted in the form of the user user information mentioned above (refer to drawing 9 K).

[0087] If this user information message is received, a called terminal 2 displays the information on the master station which received, i.e., an IP address and an addresser name, and the information on application on a display 15, and saves these information in memory. By this display, an action addressee checks acquisition of an IP address etc. and it carries out on-hook operation for line disconnection. Thereby, as shown in drawing 9 L, a cutting message is transmitted to a terminal 1 through the exchange SW2-exchange SW1, and a cutting display is made by the display 15 by the side of a terminal 1. And a release message is sent to a terminal 2 through the exchanges SW1 and SW2 from a terminal 1 side, and a circuit is released during a telephone call because the terminal 2 which received this transmits the completion message of release to a terminal 1 through the exchanges SW2 and SW1.

[0088] Then, communication which went via the Internet is performed by the sequence shown in drawing 7 D-H of the gestalt of the 1st operation of the above-mentioned, and the completely same sequence between a terminal 2 and a terminal 1 from the terminal 2 side which acquired the IP address etc.

[0089] Although each gestalt of operation beyond [the gestalt of operation of the 3rd of a correspondence procedure] is the case of communication between individual computer terminals, this invention is applicable also to remote-control communication system.

[0090] For example, the case of remote monitoring system is taken for an example as remote-control communication system. In this case, a communication demand is advanced from the surveillance pin center,large as a remote-control pin center,large to a supervisory equipment terminal equipped with for example, the surveillance camera and the sensor for surveillance as a remote-control-ed terminal, and the video information and sensor print-out which were photoed with the camera are received from a supervisory equipment terminal in the surveillance pin center,large. In addition, with the gestalt of this operation, both the surveillance pin center,large and the supervisory equipment terminal are connected to the ISDN circuit.

[0091] Drawing 10 is a flow chart which shows the flow of operation of the surveillance pin center,large in this remote monitoring system. Moreover, drawing 11 is a flow chart which shows the flow of operation of a supervisory equipment terminal.

[0092] First, a surveillance pin center,large is Step S31, performs processing connected to the Internet using 1 of an ISDN circuit circuit, and acquires the IP address of self [Step S32]. And to a supervisory equipment terminal, by another another circuit of an ISDN circuit, master station information, such as a self IP address and information on application, is included in the user user information in a call setup message, and it transmits at Step S33.

[0093] If the call setup message by the call origination from this surveillance pin center,large is detected at Step S41, a supervisory equipment terminal progresses to Step S42, generates ringing tone, and sends out a call message. And the master station information included in a call setup message is analyzed and checked at the following step S43, and it distinguishes whether it is the addresser number (numbering number) which shows beforehand the surveillance pin center,large registered into the supervisory equipment terminal in Step S44. When the call in was not a thing from a surveillance pin center,large and it distinguishes as a result of this distinction, it progresses to Step S45 and a response is not carried out. And when [in Step S44] it distinguishes that a call in is a thing from a surveillance pin center,large as a result of distinction, automatic answering is progressed and carried out to Step S46. The security of automatic answering is secured by distinction of being a surveillance pin center,large by this numbering number.

[0094] The information on an IP address or application is saved at the following step S47 after this automatic answering. And a cutting message is sent out like the case of drawing 3 C at Step S48.

[0095] Like the case where Step S34 shows to above-mentioned drawing 3 in response to this cutting message, a surveillance pin center,large sends out a release message, waits for the completion message of release from a supervisory equipment terminal, and releases the circuit of the direction connected with the supervisory equipment terminal. On the other hand, in response to the release message from a surveillance pin center,large, a supervisory equipment terminal sends out the completion message of release, and performs circuit release.

[0096] Next, a supervisory equipment terminal performs processing linked to the Internet, and advances the communication demand of the telephone communication via the Internet with a surveillance pin center,large by Step S49 with the specified application using the IP address of the surveillance pin center,large which is the following step S50 and was acquired, and the video information and sensor information which should be sent from a supervisory equipment terminal at the following step S51 are transmitted to a surveillance pin center,large via the Internet. And if it checks that transmission has been completed at Step S52, it will progress to Step S53 and release processing of the circuit linked to the Internet will be performed.

[0097] On the other hand, a surveillance pin center,large is Step S35, answers to the connection request from the supervisory equipment terminal which goes via the Internet, and receives the information sent from a supervisory equipment terminal at the following step S36. And detection of having become a reception end at the following step S37 performs release processing of the circuit connected to the Internet at the following step S38.

[0098] In this way, the remote-control communication system which led the Internet is realizable. In this case, since information can be transmitted and cheap communication can be performed by communication which led the Internet whether between a surveillance pin center,large and supervisory equipment terminals is a long distance comparatively or the information to transmit is large capacity and, expansion of the cost cut of remote-control communication system and the use range of remote-control service is expectable.

[0099] In addition, in the example of drawing 11 , although the numbering number was made to perform, it is made for the security of automatic answering to include the password beforehand defined into the information at the time of call origination, such as a call setup message from a surveillance pin center,large, and only when a supervisory equipment terminal detects this password, it can secure security by being made to carry out automatic answering.

[0100] Modification] which is others [□ Although the above explained the case where it communicated using an ISDN circuit, this invention is not limited to the classification of a communication line. For example, it is applicable if connectable with two or more partners even if it is an analog telephone line, a radio circuit, a CATV (CATV) network, etc.

[0101] Moreover, although explained as application taking the case of the telephone via the Internet, this invention is not limited to the kind of application and communication network.

[0102] Moreover, the composition of a terminal does not need to be one apparatus as shown in drawing 2 , and the communication-interface section may be another composition like an external modem.

[0103] Moreover, the transmitting method of information, such as an IP address and application, is not restricted to the method of transmitting as the above call setup messages or a user information message. For example, as long as it is an analog telephone line, you may transmit using a dial tone and may make it transmit data using a modem. Moreover, you may make it transmit using the sub-address of an ISDN circuit. Furthermore, it is made to correspond to an addresser number and the information on application or an addresser name is registered beforehand, and from an addresser number, the information ******** registered is read and it can be used as transmit information.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is a network-configuration view for explaining the outline of the gestalt of operation of the correspondence procedure by this invention.
[Drawing 2] It is the block diagram of an example of the communication terminal used for the gestalt of operation of the correspondence procedure by this invention.
[Drawing 3] It is drawing showing the sequence of the communication before the communication which led the network of the gestalt of operation of the correspondence procedure by this invention.
[Drawing 4] It is the flow chart of operation of the origination side in the case of the sequence of drawing 3 .
[Drawing 5] It is the flow chart of operation of the receiving side in the case of the sequence of drawing 3 .
[Drawing 6] It is drawing for explaining the sequence of the whole gestalt of operation of the 1st of the correspondence procedure by this invention.
[Drawing 7] It is drawing for explaining the sequence of the communication which led the network of the gestalt of operation of the 1st of the correspondence procedure by this invention.

[Drawing 8] It is drawing showing the sequence of the telephone communication which went via the Internet.
[Drawing 9] It is drawing for explaining the sequence of the whole gestalt of operation of the 2nd of the correspondence procedure by this invention.
[Drawing 10] It is the flow chart which shows the flow of operation by the side of one communication terminal of the gestalt of operation of the 3rd of the correspondence procedure by this invention.
[Drawing 11] It is the flow chart which shows the flow of operation by the side of the communication terminal of another side of the gestalt of operation of the 3rd of the correspondence procedure by this invention.
[Drawing 12] It is drawing for explaining the Internet.
[Drawing 13] It is drawing for explaining an Internet service provider.
[Description of Notations]
1 2 [-- The Internet, 11 / -- A control section, 13 / -- The speech processing section, 14 / -- The key-switch section, 15 / -- A display, 16 / -- The ISDN interface section, 17 / -- The hand-set section, 18 / -- A switching circuit, 19 / -- The ringer generating section,, SW1, SW2, SWA, SWB / -- The exchange, ISP / -- An Internet service provider, ISP-A,, ISP-B / -- Internet service provider] -- A communication terminal, 3 -- An ISDN circuit

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[Translation done.]

* NOTICES *

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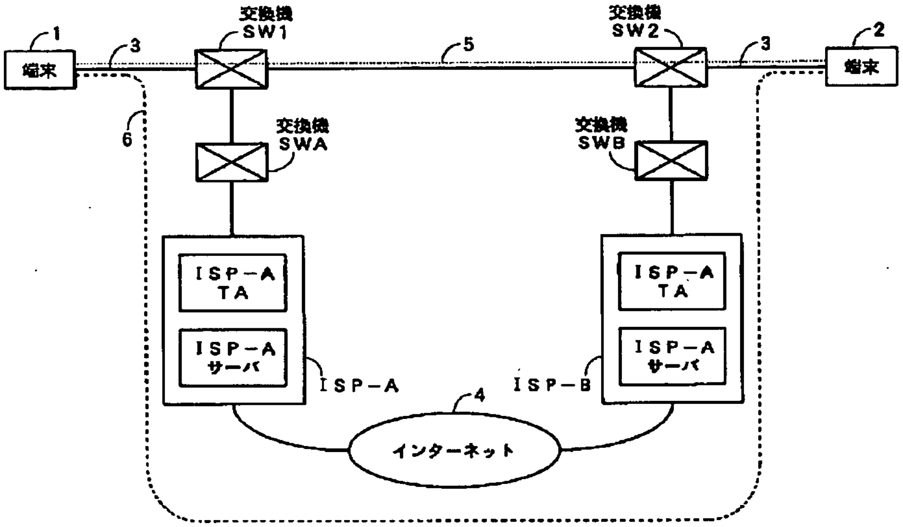
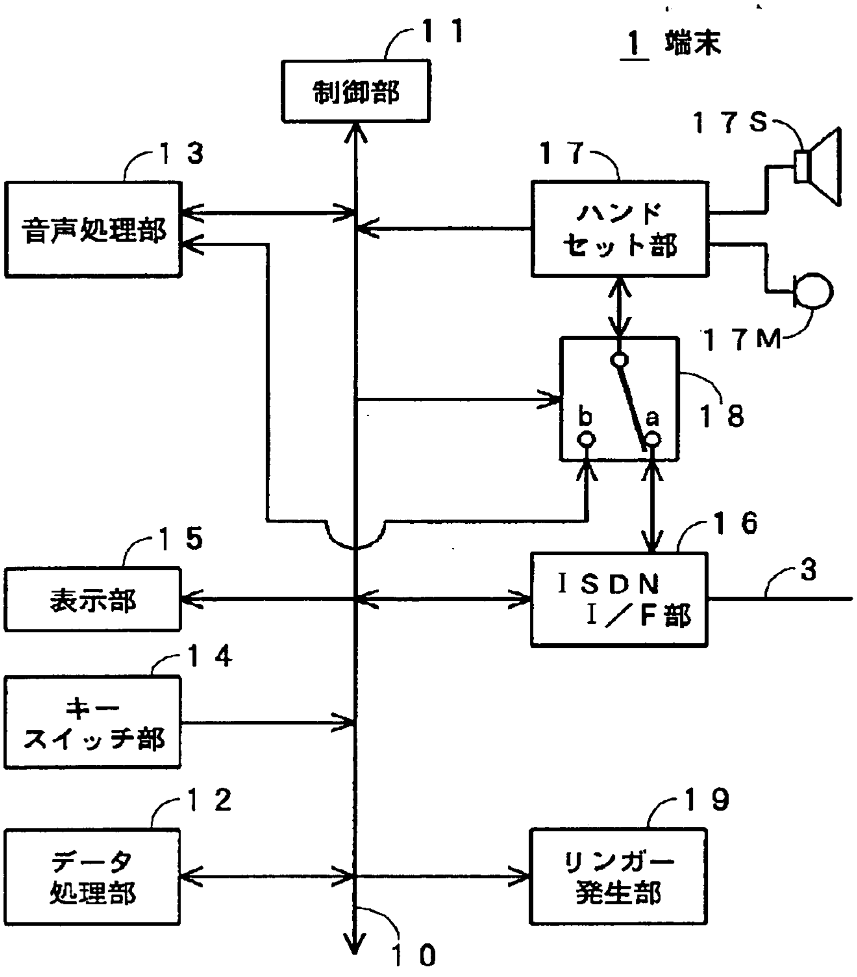
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

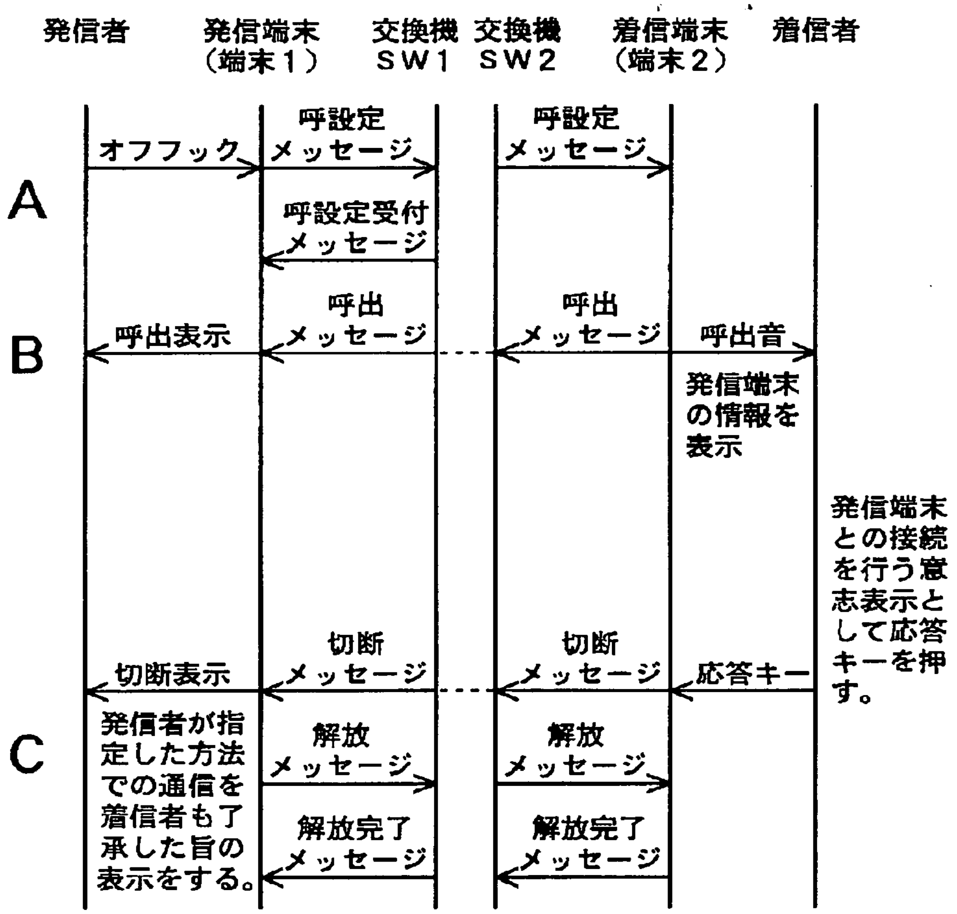
[Drawing 1]


交換機
SW1
交換機
SW2
1
端末
3
5
3
2
端末
6
交換機
SWA
交換機
SWB
ISP−A
TA
ISP−A
サーバ
ISP−A
ISP−A
TA
ISP−A
サーバ
ISP−B
4
インターネット

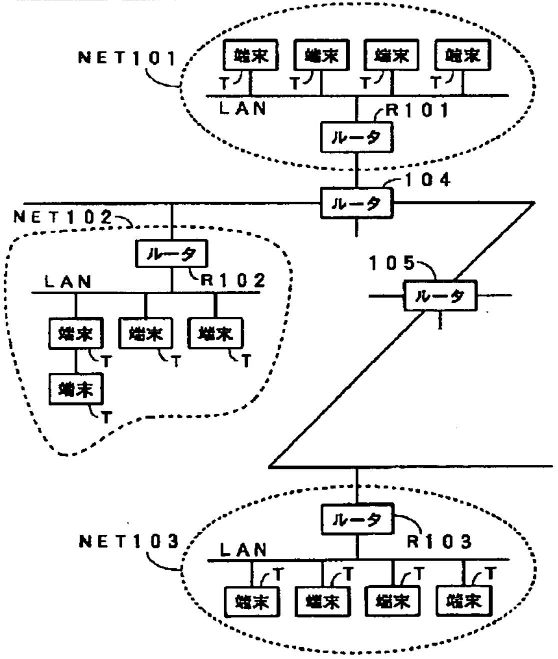
[Drawing 2]


1 端末
11
制御部
13
音声処理部
17S
17
ハンド
セット部
17M
18
b
a
15
表示部
16
ＩＳＤＮ
Ｉ／Ｆ部
3
14
キー
スイッチ部
12
データ
処理部
19
リンガー
発生部
10

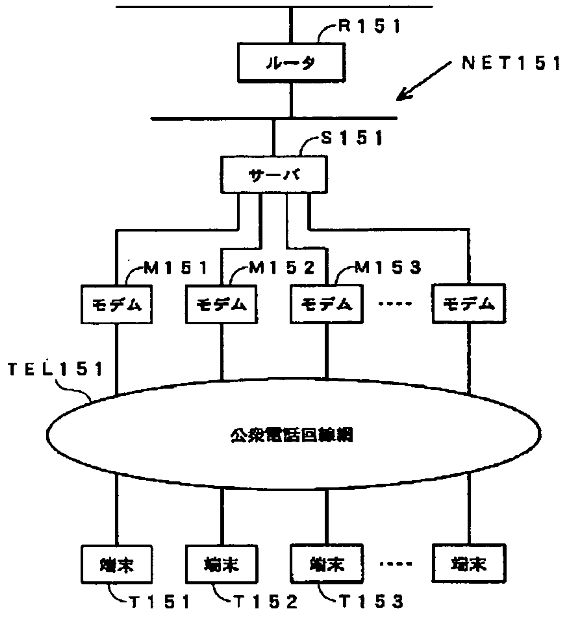
[Drawing 3]


発信者
発信端末（端末１）
交換機ＳＷ１
交換機ＳＷ２
着信端末（端末２）
着信者
A
B
C
オフフック
呼設定メッセージ
呼設定メッセージ
呼設定受付メッセージ
呼出表示
呼出メッセージ
呼出メッセージ
呼出音
発信端末の情報を表示
発信端末との接続を行う意志表示として応答キーを押す。
切断表示
切断メッセージ
切断メッセージ
応答キー
発信者が指定した方法での通信を着信者も了承した旨の表示をする。
解放メッセージ
解放メッセージ
解放完了メッセージ
解放完了メッセージ

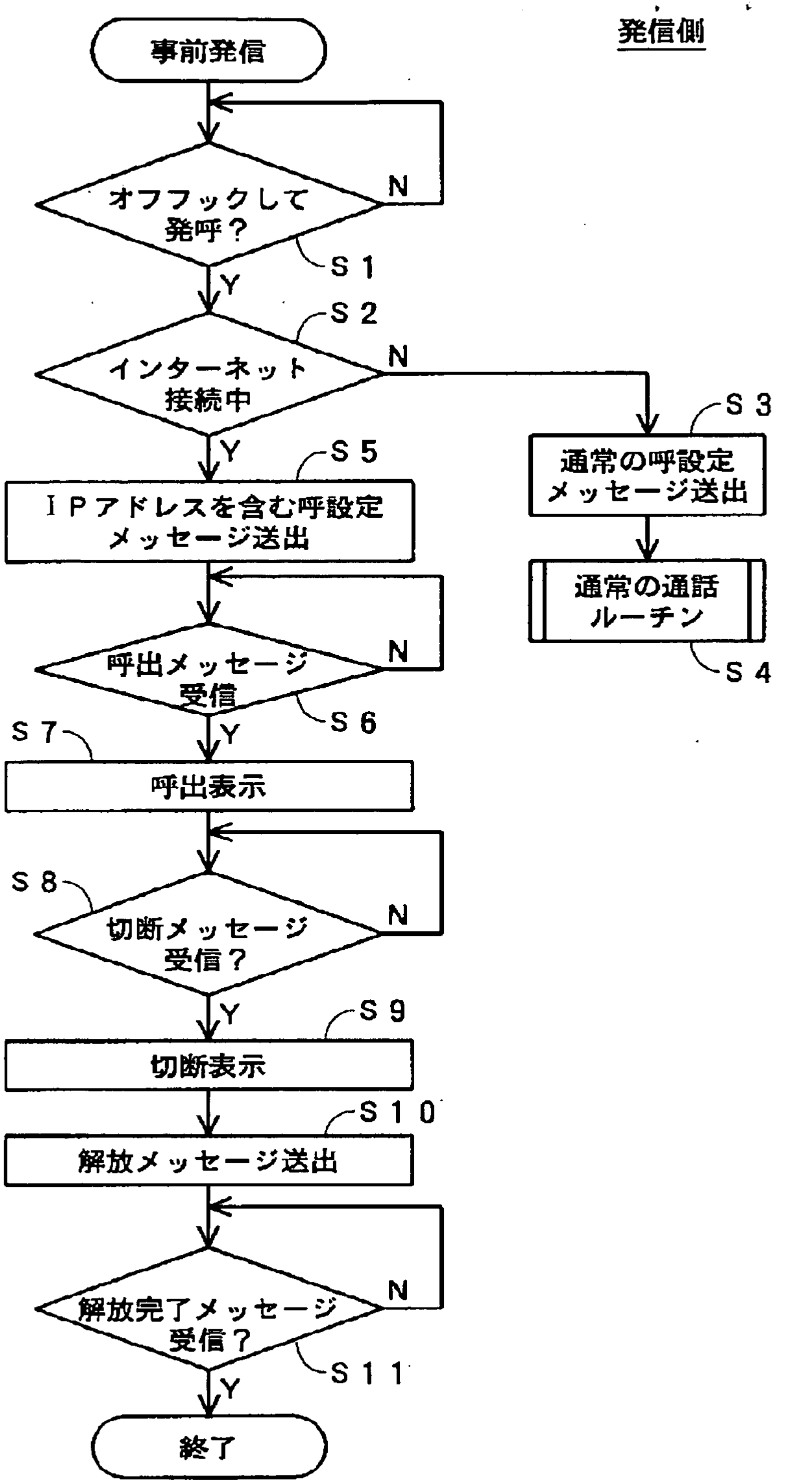
[Drawing 12]


NET101
端末
端末
端末
端末
T
T
T
T
LAN
R101
ルータ
104
ルータ
NET102
ルータ
R102
LAN
端末
端末
端末
端末
T
T
T
T
105
ルータ
NET103
ルータ
R103
LAN
T
T
T
T
端末
端末
端末
端末

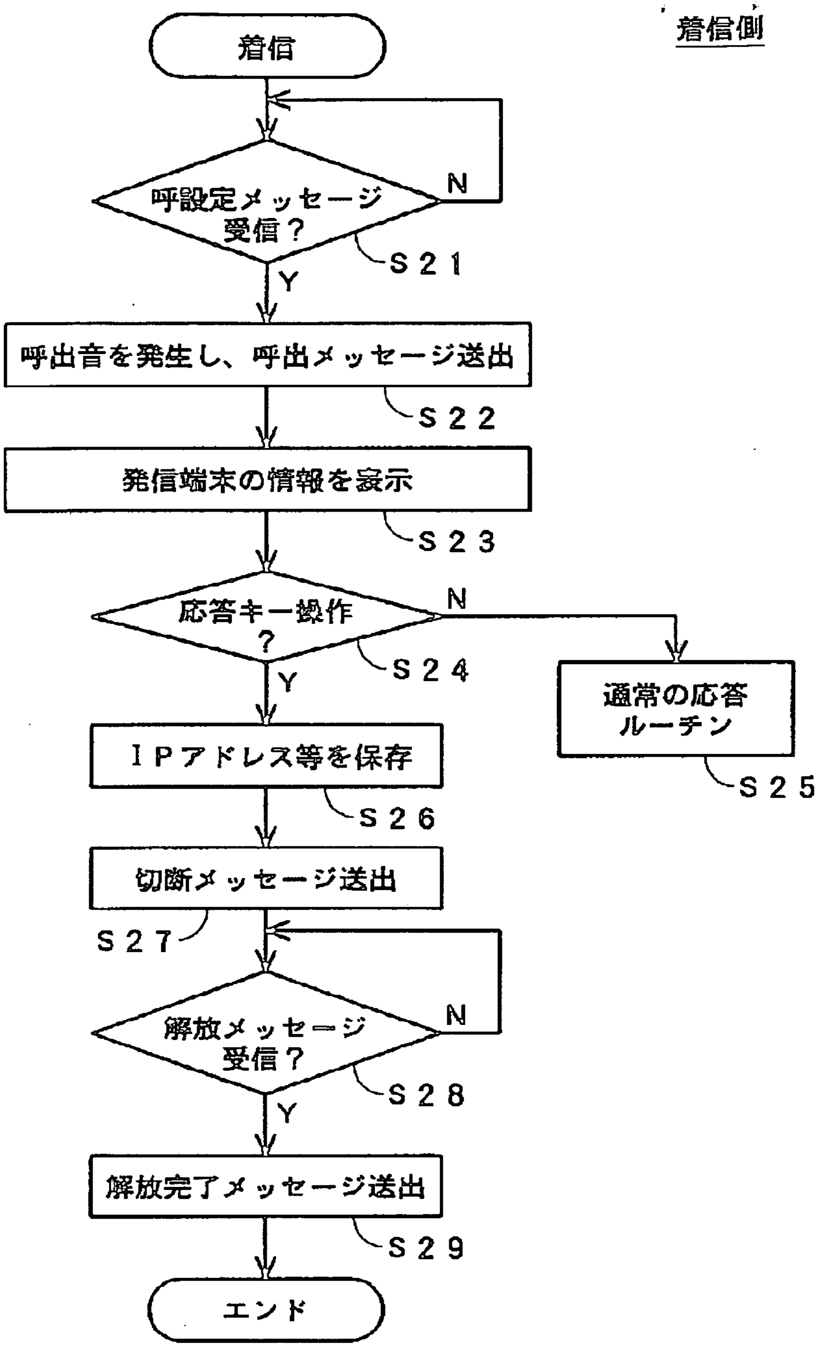
[Drawing 13]


R151
ルータ
NET151
S151
サーバ
M151
M152
M153
モデム
モデム
モデム
モデム
TEL151
公衆電話回線網
端末
端末
端末
端末
T151
T152
T153

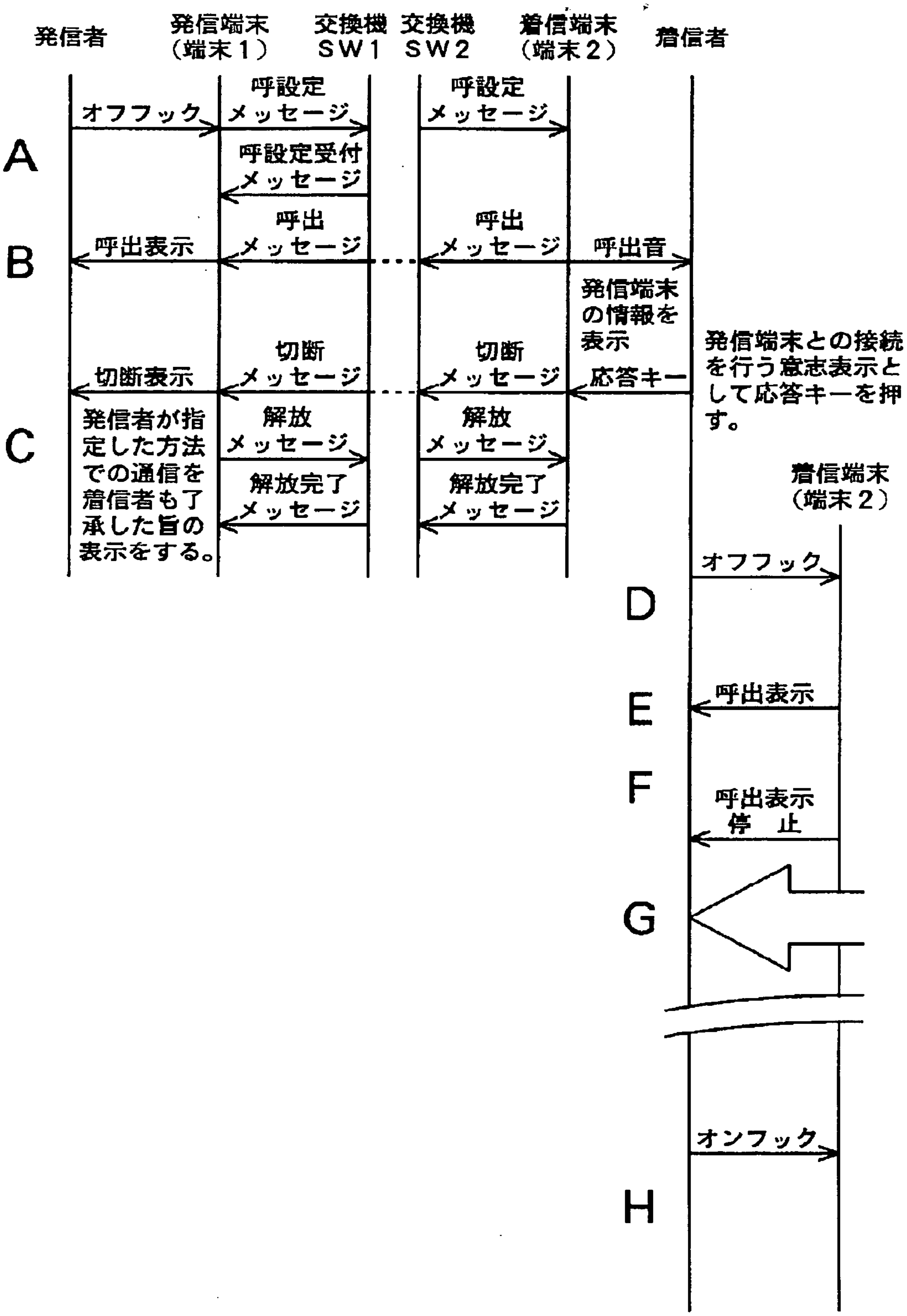
[Drawing 4]


発信側
事前発信
オフフックして発呼？
S1
N
Y
S2
インターネット接続中
N
S3
通常の呼設定メッセージ送出
通常の通話ルーチン
S4
Y
S5
IPアドレスを含む呼設定メッセージ送出
呼出メッセージ受信
N
S6
Y
S7
呼出表示
S8
切断メッセージ受信？
N
Y
S9
切断表示
S10
解放メッセージ送出
解放完了メッセージ受信？
N
S11
Y
終了

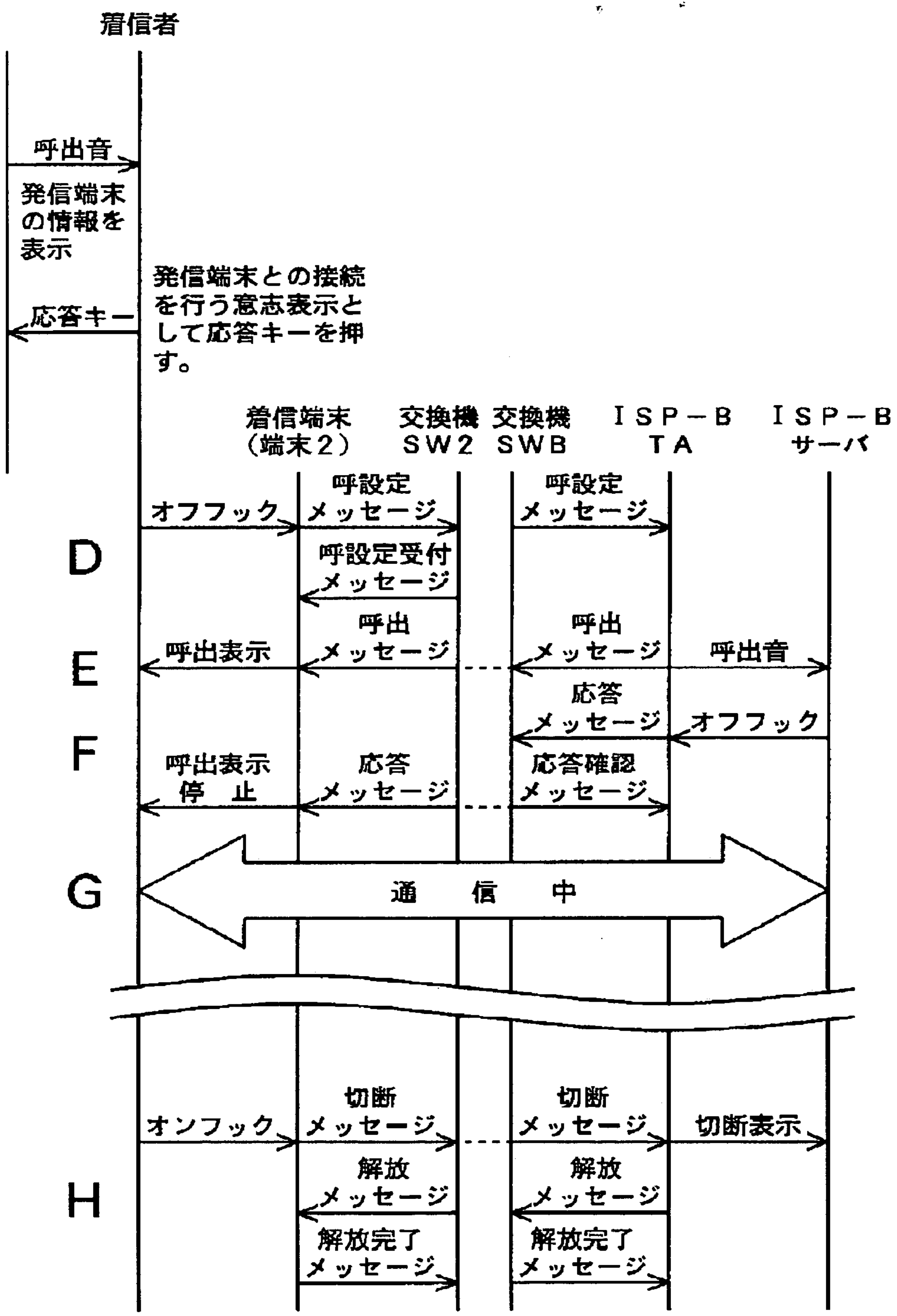
[Drawing 5]


着信側
着信
呼設定メッセージ受信？
N
Y
Ｓ２１
呼出音を発生し、呼出メッセージ送出
Ｓ２２
発信端末の情報を表示
Ｓ２３
応答キー操作？
N
Y
Ｓ２４
通常の応答ルーチン
Ｓ２５
ＩＰアドレス等を保存
Ｓ２６
切断メッセージ送出
Ｓ２７
解放メッセージ受信？
N
Y
Ｓ２８
解放完了メッセージ送出
Ｓ２９
エンド

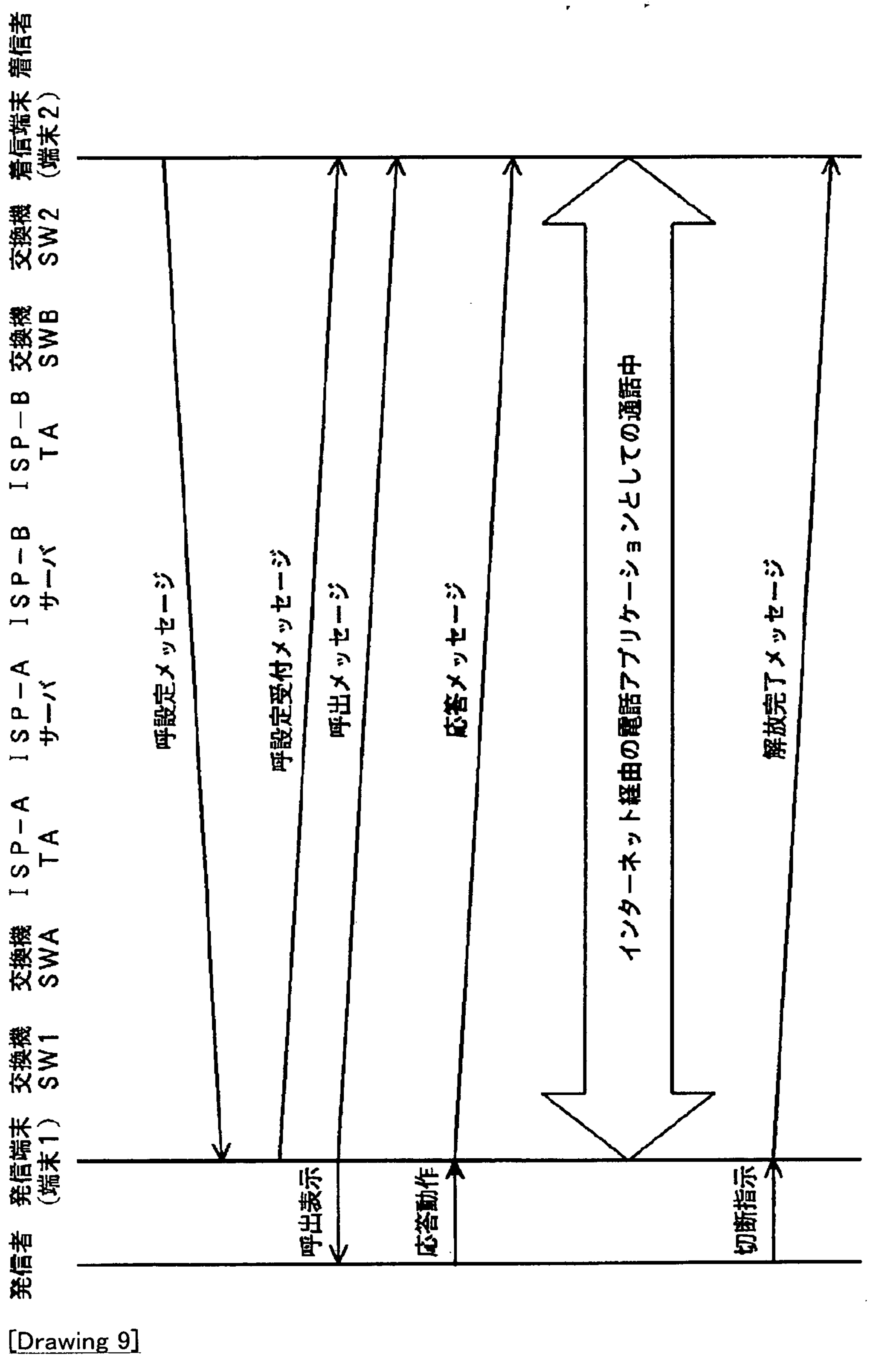
[Drawing 6]


発信者
発信端末（端末１）
交換機ＳＷ１
交換機ＳＷ２
着信端末（端末２）
着信者
A
オフフック
呼設定メッセージ
呼設定メッセージ
呼設定受付メッセージ
B
呼出表示
呼出メッセージ
呼出メッセージ
呼出音
発信端末の情報を表示
発信端末との接続を行う意志表示として応答キーを押す。
切断表示
切断メッセージ
切断メッセージ
応答キー
C
発信者が指定した方法での通信を着信者も了承した旨の表示をする。
解放メッセージ
解放メッセージ
解放完了メッセージ
解放完了メッセージ
着信端末（端末２）
オフフック
D
E
呼出表示
F
呼出表示停　止
G
オンフック
H

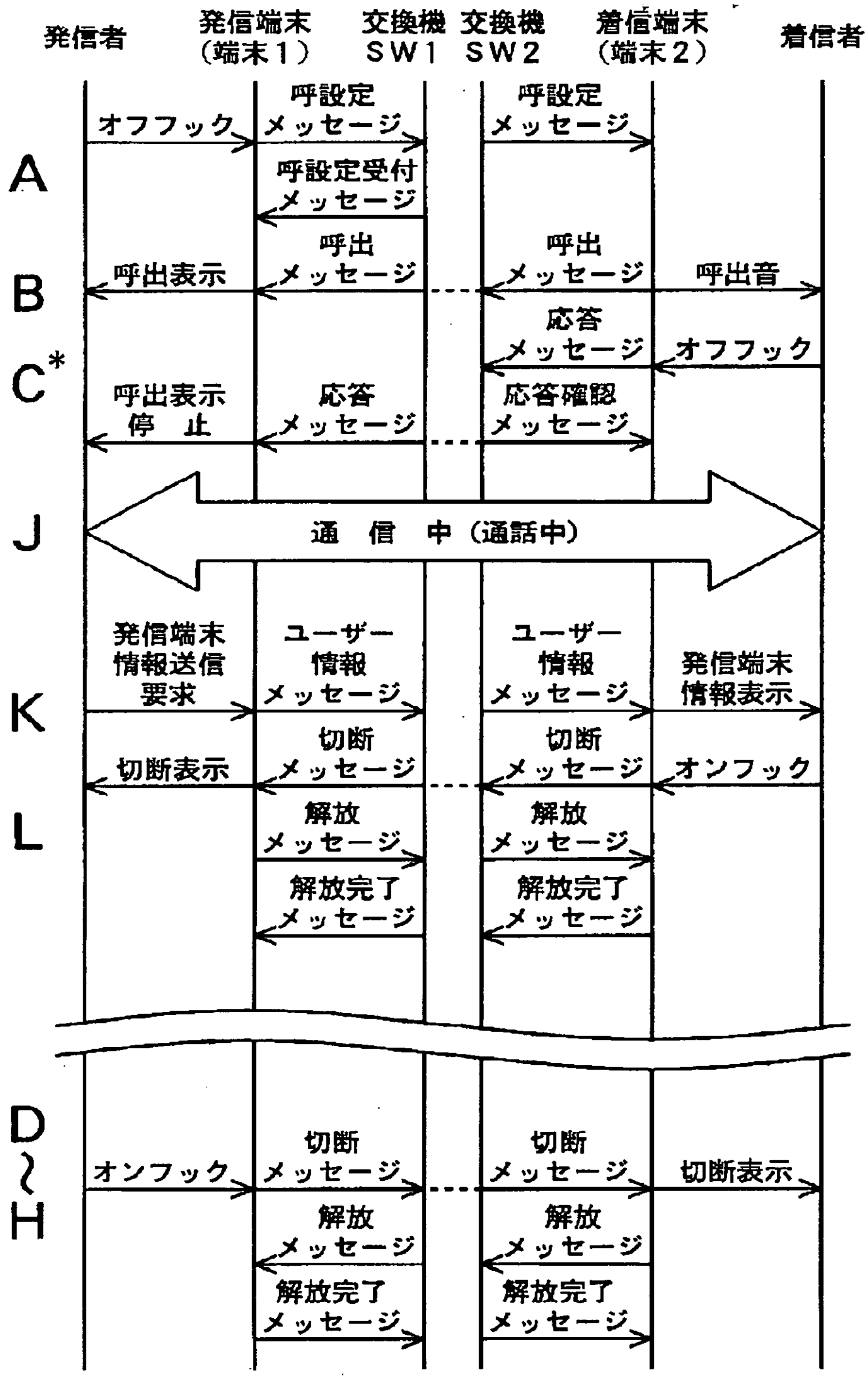
[Drawing 7]


着信者
呼出音
発信端末の情報を表示
応答キー
発信端末との接続を行う意志表示として応答キーを押す。
着信端末（端末2）
交換機 SW2
交換機 SWB
ISP－B TA
ISP－B サーバ
オフフック
呼設定メッセージ
呼設定メッセージ
D
呼設定受付メッセージ
呼出表示
呼出メッセージ
呼出メッセージ
呼出音
E
応答メッセージ
オフフック
F
呼出表示停止
応答メッセージ
応答確認メッセージ
G
通信中
オンフック
切断メッセージ
切断メッセージ
切断表示
H
解放メッセージ
解放メッセージ
解放完了メッセージ
解放完了メッセージ

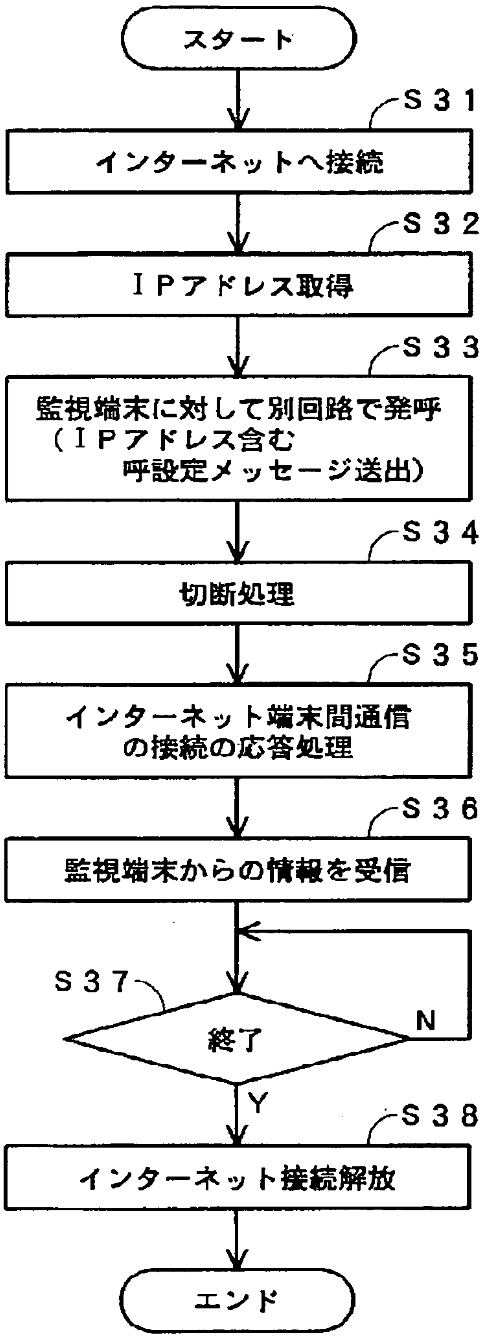
[Drawing 8]


発信者
発信端末（端末1）
交換機SW1
交換機SWA
ISP−A TA
ISP−A サーバ
ISP−B サーバ
ISP−B TA
交換機SWB
交換機SW2
着信端末（端末2）
着信者
呼設定メッセージ
呼設定受付メッセージ
呼出メッセージ
呼出表示
応答メッセージ
応答動作
インターネット経由の電話アプリケーションとしての通話中
解放完了メッセージ
切断指示

[Drawing 9]


発信者
発信端末（端末１）
交換機 ＳＷ１
交換機 ＳＷ２
着信端末（端末２）
着信者
A
オフフック
呼設定メッセージ
呼設定メッセージ
呼設定受付メッセージ
B
呼出表示
呼出メッセージ
呼出メッセージ
呼出音
C*
応答メッセージ
オフフック
呼出表示停止
応答メッセージ
応答確認メッセージ
J
通信中（通話中）
K
発信端末情報送信要求
ユーザー情報メッセージ
ユーザー情報メッセージ
発信端末情報表示
L
切断表示
切断メッセージ
切断メッセージ
オンフック
解放メッセージ
解放メッセージ
解放完了メッセージ
解放完了メッセージ
D～H
オンフック
切断メッセージ
切断メッセージ
切断表示
解放メッセージ
解放メッセージ
解放完了メッセージ
解放完了メッセージ

[Drawing 10]

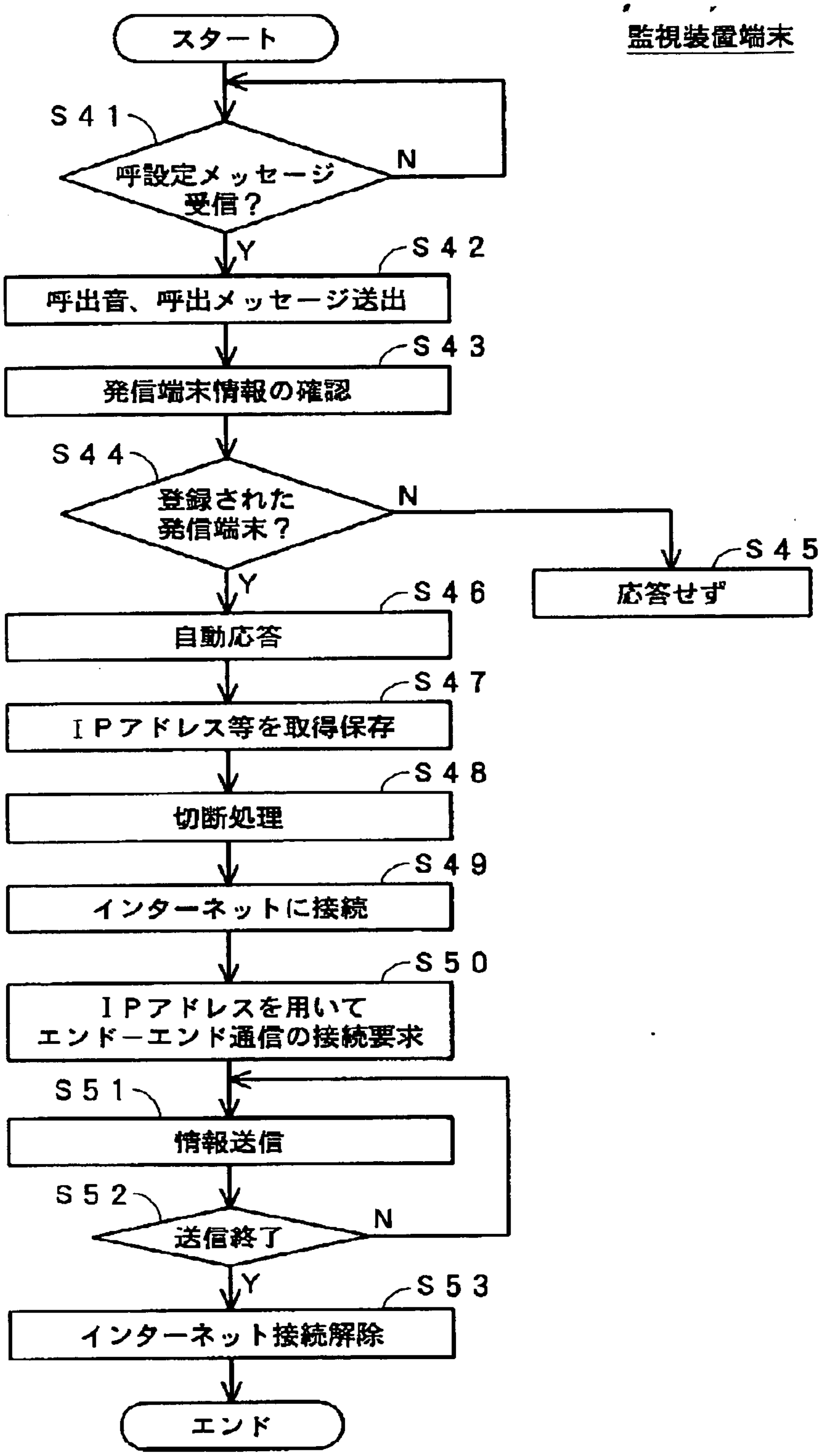


監視センター

スタート
S31
インターネットへ接続
S32
ＩＰアドレス取得
S33
監視端末に対して別回路で発呼（ＩＰアドレス含む呼設定メッセージ送出）
S34
切断処理
S35
インターネット端末間通信の接続の応答処理
S36
監視端末からの情報を受信
S37
終了
N
Y
S38
インターネット接続解放
エンド

[Drawing 11]

監視装置端末


スタート
S41
呼設定メッセージ受信？
N
Y
S42
呼出音、呼出メッセージ送出
S43
発信端末情報の確認
S44
登録された発信端末？
N
S45
応答せず
Y
S46
自動応答
S47
IPアドレス等を取得保存
S48
切断処理
S49
インターネットに接続
S50
IPアドレスを用いて
エンド－エンド通信の接続要求
S51
情報送信
S52
送信終了
N
Y
S53
インターネット接続解除
エンド

[Translation done.]